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An Address
ON THE
PSYCHOLOGY AND PSYCHOPATHOLOGY OF CHILDHOOD.*

BY
R. D. GILLESPIE, M.D.,
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EVERYONE knows that the last decade of medical work and thought has been characterized by nothing more than by an increasing appreciation of the importance of psychological factors in the production of ill-health. This rediscovery has been derived primarily from the study of adult ill-health; but one of its fundamental implications is that adult psychological disorders depend very often and very largely upon conditions, personal and environmental, which have existed in childhood. In childhood itself, the share of psychological factors is probably even greater than in adult life in producing illness; for the child's entire psychophysical system is more labile than the adult's, and emotional disturbances lead more readily to bodily effects. Moreover, in children, disturbances of a psychotic kind are absolutely rare, and the mental disturbances which do occur have usually a closer and more obvious connexion with immediate factors than is encountered in most adult disorders, no matter of what general clinical type.

There are consequently several principal directions of interest for the student of child psychopathology. These are the psychopathology of childhood for its own sake, the physical signs and symptoms produced by emotional factors and especially prone to occur in children, and the connexion of adolescent and adult psychological morbidity with childhood and its influences. The first and especially the second of these directions are of peculiar interest to the student and teacher of paediatrics; for a numerically important and varied group of physical disturbances of a fairly distinctive kind results from emotional and temperamental influences. The third is one which interests the professed psychiatrist more; but the paediatrician who explores it can make valuable contributions in a largely unworked field of preventive medicine.

General Fallacy of Interpretation.

One caution must always be observed. It is a caution of interpretation. We must be careful not to play the Lewis Carroll or the Kenneth Graham, measuring what we observe in a child's mind too much in terms of adult knowledge and experience. It may seem superfluous to issue such a caution to those who are brought face to face with a similar situation in treating the physical illnesses of children, but in psychological affairs we are far more apt to interpret what we see not merely in terms of adult experience in general, but of our own in particular. Not to do so is difficult, even for those who remember better than the majority their own childhood; indeed, this remembering may itself be a source of bias, experiences that are similar to our own being too readily attributed to similar causes. There are other errors of interpretation, of which I shall speak later.

PRINCIPAL CHARACTERISTICS OF CHILD PSYCHOPATHOLOGY.

There are three cardinal points for discussion in the psychology of children, considered apart from the psychology of adults, as far as distinctions in this field can be drawn. They are, first, the great influence of environment upon the child's mental processes; secondly, the plasticity of the latter; and thirdly, the prominence of egoistic tendencies, their substitution and frustration, in the production of symptoms. Environment means, of course, the personal environment of parents, brothers, sisters, teachers, and companions; and an important reflection occurs here, that when signs of morbidity appear, they arise at the surface of contact, so to speak, of the child's environment with his aims and desires, rather than at some locus of conflict deeply within the psyche. It is far more often a question of some direct frustation than of a conflict between an introjected ideal and libidinous unconscious wishes.

Influence on Method.

This is a generalization which admits exceptions, but it is of sufficient importance, in theory and especially in practice, to warrant expansive discussion. For instance, it connotes that relatively simple adjustments of the environment, after careful consideration of the tendencies whose frustration or misdirection are indicated by the symptoms, will cause the latter to disappear; and that intensive intrapsychic exploration of the child's mind is usually unnecessary. Hence the psychiatrist's method of exploring the problem principally through interviews, with parents and other adults more than with the child himself, has its justification. There is, however, a small residue of cases in which intensive exploration may be desirable.

Prognostic Contrast in Children and Adults.

The second point, the plasticity of the attitude and behaviour of children, is another aspect of the first, and is of immense practical and theoretical importance; although this plasticity is limited in some degree by inborn disposition and temperament. Taking the most superficial aspect of the whole problem first, we are confronted by such a contrast as this, which shows the recovery rates in a group of adults, and in a number of children who attended the out-patient practice of the department of nervous disease and psychological medicine in Guy's Hospital two years ago.

The statistical analysis of 70 adult patients who were treated at that time and have subsequently been followed up gives this result.

Not traced	7
Dead, committed suicide, or disappeared	9
Condition little changed	28
Improved	14
Much improved or cured	12
Total	70

This gives a percentage of 37 improved or cured. A similar investigation among 60 children two years after their treatment gives the following figures.

Not traced	5
Condition little changed	16
Improved	15
Much improved	24
Total	60

This gives a percentage of "improved" or "well" of 65. The groups are statistically very small, but the figures are sufficiently in accord with general impressions to be considered reliable. One has the more confidence in the figures for the group of children, because it included all varieties, even such unfavourable ones as feeble-minded and epileptic children.

Controls.

The improvement all round was so marked and so invariable, where it could be expected, that the reflection readily arises that so-called "nervous" children would usually get better of themselves without the aid, sometimes nowadays very elaborate, of the clinic. Indeed, while giving proper weight to the immense effect of the child's environment in producing psychological disturbances, it is necessary to remember that all children are subjected to innumerable traumata, and the wonder is, not how many nervous or unstable children there are, but what a large proportion grow to be reasonably normal men and women. The urge to adaptation has been well styled imperative. Nevertheless, the comparatively few unstable ones are in the aggregate many, and their contribution to adult social inefficiency and ill-health is sufficient to make psychiatric work with children not only as worth while as any, but worth extending till every considerable hospital has the necessary facilities and has intimate connexions with other social organizations for child welfare, as well as with children's courts.

*Given to the International Paediatric Congress, Stockholm, August, 1930.

Role of Innate Factors.

Just as too much optimism may lead to a policy of *laissez-faire* on the ground of the self-adjustment of the majority of psychopathological phenomena in children, so on the other hand may a pessimism, preconceived on the score of the importance and immutability of inborn temperament and disposition, lead to a failure to grasp numerous possibilities of modification; for the limitations produced by inborn factors are much less than is generally supposed. It is a sound working rule to attribute nothing morbid, whether of behaviour, mood, or thought, to congenital, and therefore presumably less modifiable causes, until a complete investigation has exhibited nothing in the history of environmental influences and personal events that will reasonably account for the symptoms, and until the latter have been proved but little modifiable by any known therapy; and even then the matter may not have been congenitally engraved.

Prophylaxis of Adult Neuroses and Psychoses.

The practical importance of the plasticity of the child's mind in both its congenital and acquired aspects lies not only in the management of nervous children, but in the prevention of neurotic and psychotic disorders in later life. There are two principal views of the etiology of adult mental illness. Both of them place the primary focus in the formative influences of childhood; but one view regards the adult illness as the cumulative result of mental habits acquired and engrained throughout childhood and adolescence; while the other regards it as a regression to particular emotional "fixations" or attachments of an erotic kind at the same period. The apparent divergence of view lies perhaps more in emphasis and terminology, but they certainly agree in acknowledging the importance of early factors. It seems to me, however, that in its insistence on a set pattern, the Oedipus pattern, in the infantile foundation of neuroses, the second view does less justice than the first to the almost infinite plasticity of the young organism's mental and emotional equipment, the wide variety of the influences that impinge upon it, and the multiplicity of its responses.

Self-assertive Tendencies and Their Handling.

The third generalization, that symptoms in children centre principally round their egoistic, self-preservative, or self-assertive strivings, is derived from a study of the nature of the symptoms, their mode of production, and their therapeutic reactions. The point, although it must seem obvious to many, is worth making; for the alternative view invokes the same explanation for children's nervous disturbances that is so commonly advanced for those of adults—namely, the vital importance of infantile sexuality. My impression is that in children the origin of psychogenic symptoms in the greater number of cases is, properly speaking, neither infantile nor sexual. No one now denies the existence of infantile and childish sexual desires. But two fallacies seem to be committed by exponents of the more rigorously Freudian view. To say that infantile sexuality exists is an entirely different assertion from the statement that it lies at the root of all neurotic disorders of children and adults. The other assertion is that infantile sexuality is the same as adult sexuality in its aims and objects. This is a type of assertion that is hard to disprove, for a negative finding is no proof to the contrary. Careful observation by ordinary methods in younger children fails to furnish, as a rule, evidence of sexuality of this type at the foundation of their functional nervous disturbances; the special methods which have been employed to show it, from contemporary studies of children (not from retrospective accounts from adults), do not command confidence as valid scientific evidence. I am thinking of Little Hans and some of the other psycho-analytic work with children. It is possible, of course, by a sufficient complication of hypotheses, to regard egoistic tendencies as themselves libidinous. A child's desire for praise, possessions, and other outlets of self-assertion, may be said to represent libido which has been diverted towards egoistic ends, but it is more useful, as well as simpler, to take these tendencies for what they certainly are. There is another field of research here. Direct observation, unbiased by esoteric pre-conceptions, is badly wanted. In the meantime, it is a safe working rule to regard the majority of children's psychogenic disturbances as disturbances of their egoistic strivings.

Disorders of Childhood.

A general survey of the varieties of mental and functional nervous disorders of childhood will illuminate the generalizations which have been made. (The age range given in several of the groups is that of children attending Guy's Hospital as out-patients in the last four years. Patients over 14 years of age are not included.)

1. *Disorders of Personality.*—Timidity, obstinacy, irritability, outbursts of temper, sensitiveness, shyness, day-dreaming, lack of sociability, emotional disturbances, etc. (Age range in the Guy's series 12 to 14. Intelligence quotient 81 to 103.)

2. *Behaviour Disorders.*—Truancy, wandering, temper outbursts, lying, stealing, begging, cruelty, sex misdemeanours, food fads, refusal of food, etc. (Age range in the Guy's series 4 to 14. Intelligence quotient 67 to 103.)

3. *Habit Disorders.*—Nail biting, thumb sucking, incontinence—nocturnal and diurnal—constipation, vomiting, stammering, etc. (Age range up to 14. Intelligence quotient 77 to 127.)

4. *Psychoneuroses.*—Anxiety psychoneuroses (age range 7 to 14), hysteria (age range 5 to 14, intelligence quotient 64 to 93), phobias, obsessions, compulsions, tics (some).

5. *Psychoses.*—Schizophrenia (dementia praecox), manic-depressive psychoses, etc.

6. *Epilepsy.*

7. *Mental Deficiency.*—Dull and backward group, the result of general or localized defect—for example, word-blindness and word-deafness; feeble-mindedness; imbecility, idiocy; temperamental defect ("moral imbecility").

8. *Sleep Disorders.*—Insomnia, night terrors, somnambulism.

9. *Mental Disorders* occurring with, and probably dependent on, some physical disease—for example, chorea, epidemic encephalitis, trauma.

10. *Disorder of the So-called "Glycopenic" Variety.*—Migraine, crises of collapse, insomnia, night terrors, cyclical vomiting, etc.

This classification is proposed from experience as a convenient one, although it mingles symptomatic and diagnostic categories to some extent, and although there is also some overlap between the various subdivisions. The deviations of personality issue in abnormalities of behaviour, but of a less outspoken, less impulsive, and more consistent type than those of subdivision 2. Habit disorders are distinguished from behaviour disorders in so far as they involve only a part of the child's behaviour—that is, are a much simpler form of activity, and do not require conscious co-operation for their production. On the other hand, some of them probably begin in no other way than as hysterical symptoms, and deserve to be classified accordingly. This would hold especially for some instances of vomiting, of incontinence, and of constipation. Mental deficiency, especially in its lesser degree of intellectual subnormality, naturally interpenetrates the other groups. The extent is suggested by the results of systematic testing of every child who comes to a psychiatric out-patient department. Figures were compiled for fifty-two unselected children who attended as out-patients in the department of psychological medicine at Guy's Hospital during the first months of this year. A frequency curve exhibited well that the majority of the fifty cases of which detailed records were available had an intelligence quotient between 70 and 90—that is, belonged to the "dull and backward" group, on this test. The figures suggested what would be suspected on general grounds, that an intellectual equipment less than the average does tend, even at an early age, to produce additional difficulties in social adaptation, and to foster symptoms in a disproportionate percentage of the dull and backward. It occurred to us that the Binet-Simon tests might not do justice to these children. Accordingly performance tests were also given. Contrary to expectation, the results with performance tests

were inferior to those with the Binet-Simon scale, when compared with normal standards. The general results were suggestive rather than conclusive. The group was too small, and some other experience of the prognostic value of such tests for social adaptation after the school age has been passed makes me a little sceptical of their value in general. My impression is that many of the so-called dull and backward, who show abnormalities of behaviour and other symptoms of adaptive disharmony during the school age, often do remarkably well by comparison after leaving school. This impression is borne out statistically by some figures recently supplied to R. G. Gordon from school children at Bath. It seems, nevertheless, to be of great importance that a machinery for occupational guidance should exist which would begin to operate at the age of 12. This would go far to prevent much adolescent unhappiness, inefficiency, and nervous illness.

To return to the clinical classification already given, the first two clinical groups and the fourth are the most important for establishing our general propositions regarding environment, plasticity, and egocentricity. It is convenient, however, to deal first of all with the other clinical groups, in summary fashion, but sufficiently to place them in their proper perspective, and to indicate openings for research.

Habit Disorders.

Some of the so-called habit disorders, such as nail biting, thumb sucking, and the like, belong to a group of which some variant occurs in practically every child (Olsen). Their *raison d'être* is either pleasurable stimulation of the auto-erotic variety, or the non-specific expression of a disturbed mental state. Incontinence, although often similar in origin to these, has a more varied etiology. In our series at Guy's Hospital urinary and especially faecal incontinence has been most frequently associated with some degree of mental defect, and on this and other grounds (especially the evidences of parental inadequacy) it is presumably often the simple result of lack of educational influences or capability. But incontinence can also be present as the result of mental conflict, as the non-specific expression of an emotional disturbance, or, more directly, as a self-assertive phenomenon and sometimes as an erotic one. As a symptom, urinary incontinence can be cured by all kinds of methods, and all kinds of methods can fail. Fear is said to be a frequent cause of it; but I have known additional fear to cause it to cease. Urinary incontinence, especially the nocturnal form, is a problem not yet wholly solved, either in theory or in therapy.

Psychoses: Fallacies of Interpretation.

With regard to Group 5, psychoses in the adult sense are so rare in childhood as to furnish relatively little material for psychological investigation. It is important to remember that many traits which would be psychotic in an adult cannot be so regarded in a child. In some recent literature there is a tendency to interpret the behaviour and thought of certain children in the same terms as would be used if the patient were an adult. This is often fallacious, and disregards the basis of a fundamental conception—namely, that of regression. Certain forms of behaviour normal in a child, if persisted in till adult life, would make the adult a psychotic; and regression consists not in persistence in, but in return to, such behaviour—that is, it implies the reappearance of early traits in a late setting; but there has to be a certain depth of regression before these traits are regarded as psychotic. It is therefore not correct to say that simply because certain childish traits, such as suggestibility and negativism, are highly accentuated in a child, these traits betoken a psychosis. The case is similar with certain kinds of mental content. A child may believe itself a kind of god, and yet not be considered to have a delusion, in the adult sense; for such ideas are common to many, and perhaps in a sense to all, children at some time or another, and differ only in the length of time for which they persist. Most children feel omnipotence in some fashion at some time, and hanker after it when they cease to feel it. Often the more intelligent child disbelieves for a time the reality of anything but himself. The tendency is to characterize such beliefs as psychotic only when they are expressed, and to ignore the fact that they are always present in some form at some time, although often not even consciously formulated except in the intellectually brighter children.

This matter of *conscious formulation* is important, and touches not only the interpretation of so-called psychotic traits in children, but the general psychotherapeutic accessibility of psychological disturbances in them. In the degree of awareness of his mental processes and in his ability to observe and to express them verbally, the child is inferior even to the average adult. In children we often feel that in the grave disorders of behaviour, the concrete reaction appears first, and the conscious formulation only afterwards, if at all. Not only is this one of the reasons why it is unwise to conclude that certain symptoms that are prima facie psychotic are necessarily so, but it is also part of the reason why disorders of behaviour and even the more habitual deviations of personality are usually so readily altered in children. There is little organized mental superstructure, conscious or otherwise, of the reactions. The external conditions are there, and the reaction takes place: let the external stimuli be removed, and the reaction dies out. It is not merely that the hypothetical "paths" are not deeply graven, but that there are no well-organized sets of motives, no complex intrapsychic elaborations, which will act to maintain and stereotype the abnormal reaction. The whole process is more closely analogous to a conditioned reflex than one meets anywhere in the behaviour of adults and their mental disorders.

The term psychotic is not, therefore, properly applied to such disturbances in children; but in so far as the term "regressive" can be truly applied, it can entitle behaviour or thinking to be labelled psychotic, and the latter term is thus sometimes applicable. This conception, as has been pointed out, also necessitates a certain "depth" of regression, and since depth is a misnomer for a time sequence, there is obviously less scope for manifestations of regression in children. Nevertheless, these manifestations frequently occur, but more often in the field of behaviour, and in simple form, such as crying and baby-talk, than in the domain of thought. When the regression includes much of the child's thinking as well as his behaviour, the temptation to think in terms of adult psychoses is stronger than ever, but it is more correct as well as safer not to be tempted to apply diagnostic terms borrowed from adult psychiatry to such instances. The rule should be here, as always, to deal directly with the facts of observation and to avoid obscuring them with diagnostic terms, such as schizophrenia, unless their use in a given instance is unimpeachable.

For example, I recently saw a child, aged 6, whose condition had been diagnosed schizophrenic. For the past eighteen months he had used only inarticulate sounds and cries. He was very restless and distractible. If presented with a book he turned over the pages rapidly in the manner of a child aged 2. Given a piece of paper, he scribbled at first wavy lines; then when some simple diagrams were placed before him he produced crude geometrical forms. He was not at all hostile or even apathetic, for he placed his arm round the doctor's neck and his cheek against his, smiling slightly. His entire behaviour, in fact, resembled that of a child aged about 18 months or less. It was certainly not schizophrenia, and it lacked the push and infectiousness of a manic reaction. Yet it was a much clearer instance of regressive behaviour than is usually found in adult mental disorder. It seems better to state the facts in such a case, and to leave schizophrenia aside.

The conclusion is, that when we say that psychoses are rare in children we are in a periphrastic way saying that the conditions are so different that as a rule the term psychosis, as used in psychiatry generally, is misleading.

"Glycopenic" Disorders.

The disorders belonging to the last three groups of our classification are very common and of great interest. Many of the instances of disturbance of sleep are suitably considered along with the cyclical vomiting group. Night

terrors, for example, and some cases of insomnia, are immediately dependent on the same general cause, and all of them are on that borderland of the psychological and physical which is of such fascinating importance, and for which the illnesses of children offer an unrivalled opportunity for study (cf. chronic epidemic encephalitis). The problem in the cyclical vomiting group should interest the paediatrician who is not also a professed psychologist, since the symptoms are usually the direct expression of environmental stimuli, and do not as a rule involve the intermediary operation of psychic "complexes." It is now well established by observation—and I can confirm it amply from my own experience—that not only cyclical vomiting and its varieties, anticipatory and otherwise, but night terrors, certain headaches, often of migrainous type, some crises of collapse, some insomnias, certain cases of enuresis, and many cases of fatigue, belong to a group with the same metabolic fault behind them. (Osman adds certain cases of constipation, pallor, anorexia, failure to put on weight, growing pains, pyrexia, recurrent diarrhoea, asthma, and cough.) Since it was found that the administration of glucose acted like a charm in these conditions (Cameron), the metabolic fault was originally called "glycopenia," and it was shown by Swedish workers that while these symptoms were apt to arise in emotionally unstable children of asthenic physical type, many of them could be produced in normal children by cutting down the carbohydrate intake. But curiously, it has now been shown by Osman that there is in fact usually no hypoglycaemia in children afflicted in these ways, and that what is found is an acidosis in the sense of a diminished plasma bicarbonate. In the majority there is also no ketosis. Osman suggests that glucose works because it builds up the glycogen reserve of the liver. The relationship between nervous constitution and symptoms is in any case a close one, and represents in simple form a general problem which has always interested psychiatrists. Here in children are the first beginnings of a biochemical description of constitutional characteristics; but the description is proximate and not by any means final. Presumably in emotionally unstable children adrenaline is more readily secreted, and the glycogen reserves are more often subject to mobilization, so that the danger point for the production of symptoms is more readily and more often reached than in stable children.

Disorders of Personality.

The group of children whom I have classified as exhibiting abnormal traits of personality are of very special importance from a social and a prophylactic, as well as from a human, point of view. There are also important theoretical considerations. It is now well established that many instances of mental disorder in adults present an antecedent history of peculiarities of personal make-up—often simply accentuations here and there of traits that otherwise pass for normal. I have pointed out that one school of psychiatric thought considers that mental disorder develops directly out of such traits, as a kind of cumulative resultant of their operation, after what might be termed a break in the psychic compensation that enabled an appearance of normality to be maintained for so long. Now if these traits can be modified while they are still in the plastic stage which is so characteristic of childhood, or, still better, if they can be prevented altogether from forming, a great work will be done, as far as adult mental disorders are concerned, and much human unhappiness and inefficiency will have been prevented.

It is an undoubted fact that many such morbific traits appear in childhood; and it is also a fact of observation that in childhood such or similar characteristics are modifiable. Whether the modifiable and the morbific characteristics are precisely the same remains to be seen, but some who have worked with children on these principles are already inclined to believe that what would become some day adult psychoses are being prevented. For example, Professor Hans Maier of Zurich, in whose asylum there is a cottage for psychopathic children, tells me he believes that something is being done there towards the prevention of schizophrenias.

It is most important theoretically that the formation of a child's personal traits should be carefully scrutinized. At present some psychopathologists are somewhat obsessed by what might be called the prototypic hypothesis—that is, that a mental attitude or characteristic is explainable most completely, or even solely, in terms of the conditions of its first (supposed) occurrence. This would do less harm, were it not also assumed that the first occurrence must stand in relation to infantile orificial erotism. Obstinacy, to take one character trait as an example, is explained in terms of anal erotism and reaction between the latter and environmental conventions. But it is surely a matter of everyday observation that such traits can be formed and lost again in reaction to later desires and later influences.

All these questions form material for study at first hand, to control or replace psychopathological data at present derived solely from the retrospective statements of adults. This is a task for the psychologically minded paediatrician which will bring great rewards, both theoretical and practical. In particular he will be struck by the plasticity of even the most ominous-looking personal characteristics, when compared with their rigidity in adults. He will also be impressed by the rapidity with which environmental influences produce and modify these characteristics, and if he observes them in an objective way, without schematical preconceptions, he will probably find a dominance of ego-tendencies, in so far as the inner contribution of the patient is concerned. Even the clearly affective attachments are often more reasonably construed in terms of desire for self-assertion and of self-esteem than of erotic drives.

Behaviour Disorders.

The behaviour disorders are, for the most part, the manifestations of healthy self-assertive tendencies which have been frustrated. This becomes evident both from an inspection of their nature and from analysis of the motives in individual instances. The cases in which the disorder of behaviour indicates the frustration of some erotic goal in the narrow sense are comparatively rare. Much more readily than the personality disorders, they yield to environmental rearrangement, in conjunction with brief talks with the child, sometimes of a mildly hortatory kind. The social history of children of this group often bears an impressive resemblance to the history of juvenile delinquents. There is a suggestive field for co-operative research here.

Psychoneuroses.

The psychoneurotic anxiety states and the hysterias of children indicate in my experience much the same conclusion, with an especially direct demonstration of the effects of environmental imitation and suggestion. While we must be wary of using superficial and easy-going explanations, on the other hand a facile interpretation in more recondite terms is to be guarded against, as is illustrated in the following case.

A boy, aged 11, was brought for advice because he was afraid of the dark. He would not sleep in any room alone: at home he was often peevish, and did not get on well with his younger brother, aged 8, who was a rollicking boy and physically stronger. The patient was said to be very much attached to his mother. The latter claimed to be able to intuit his thoughts, yet she appeared to have no knowledge of the details of the boy's fears, and indeed knew virtually nothing of his inner concerns. A skilled psychopathologist who saw the boy said it seemed to be on first scrutiny a very obvious Oedipus position, but that of course he could not commit himself without further knowledge. His caution proved to be well justified, for on further inquiry the mother revealed that the boy had never been allowed to sleep alone, and that he had slept for years in the same room with her, and always with a light burning. The reason was that his mother hated marital intercourse, and dreaded having more children, and so kept the patient and the light near her as measures of protection. She made no secret of the fact that she was mortally afraid of the dark. In the circumstances it was therefore not very wonderful that her son was afraid of the dark and of sleeping alone. An insistence on a more hygienic regime produced a remission of the boy's fears for a month, when the mother, being no longer able to stand the anxiety induced by his deportation, took him back to her bedroom, with consequent relapse of the boy's condition.

This was an unusually flagrant instance of the possibilities of misinterpretation, but it shows what is evident in many instances of anxiety in children—namely, the immense influence of parental example (often direct

example of obvious anxiety). The anxious atmosphere surrounding the child becomes the natural one for it. Anxiety is there as a matter of course, colouring all its views and enterprises. The same holds for the genesis of many childish phobias. These are often the crystallization at one point of a general sense of insecurity easily engendered in a young child facing a big and difficult world. Similarly, with obsessive and compulsive conditions, the part played by the stage of development of thinking (sympathetic magic) in determining their almost universal incidence, must be investigated in their relation to instinctive tendencies. Of hysterical conditions it may be said that again a common-sense evaluation is required. The problems of the hysterical constitution and of hysterical dissociation have not by any means been finally met by the hypotheses so far advocated.

All these problems, about which there is at present so much speculation, offer a promising field for really scientific investigation. The psychiatrist, who so often sees only the end-results, envies the paediatrician his opportunities of seeing the beginnings, of watching personalities in the making, and of guiding them towards healthy, happy achievement.

RESULTS OF TREATMENT IN EXOPHTHALMIC GOITRE.

BY

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THERE is considerable uncertainty in the minds of many medical men as to the place of surgery in the treatment of toxic goitre, by which is meant not only exophthalmic goitre, but also those closely related conditions in which there are manifestations of thyroid intoxication, such as the so-called "toxic adenoma." It may be of interest, therefore, to review the results of treatment in a series of patients, some of whom were treated by thyroidectomy, and others by various methods but without thyroidectomy.

All the patients in this series were admitted to the wards under my charge during 1920–25, and since then have been recalled from time to time; only those who have been seen this year, or of whom reliable reports have been received this year, will be considered. A period varying from five to ten years has now elapsed since their admission to hospital. They all remained under direct observation in the wards for several weeks at least, and in some instances for several months, during which time many lines of treatment and investigation were tried according to the ideas or clues we were working on at the time, but neither *x*-ray treatment nor radium was employed; so that, although the number is small, they have been carefully observed. They were admitted because they were the more serious cases, and they include such patients as those with heart failure in preparation for surgical treatment, and similar cases in which surgical treatment was not carried out for one reason or another. The two groups—those treated by thyroidectomy and those treated by other methods—though not strictly comparable as regards the severity of the disease, are similar to a considerable extent, since many patients in whom thyroidectomy appeared advisable refused to undergo operation, and because we are always ready to delay operation, if possible, so that other methods of treatment can be tried. As a rule, thyroidectomy was advised in the more severe cases, and in those that proved resistant to other methods of treatment.

Of the 60 patients, there is no report for 1930 in 10, and of the remaining 50, 24, with an average age of 38 years, were treated surgically, and 26, with an average age of 35 years, by means other than thyroidectomy. Of the 24 treated surgically, the results (Table I) are good (capable of full work) in 15, poor (working with difficulty) in 5, bad (leading invalid life) in 1, while 3 are dead. Of the 26 treated by non-surgical methods, the results are good in 10, poor in 4, bad in 2, while 10 are dead. The principal difference in the results in the two groups is the much higher mortality in the non-surgical group. Even if two patients who died in hospital of conditions not apparently connected with the thyroid disease are omitted, the difference in the mortality in the two groups is striking.

TABLE I.

Treatment.	Total Number.	Average Age.	Results.			
			Good.	Poor.	Bad.	Died.
Surgical	24	38 years	15	5	1	3
Non-surgical	26	35 years	10	4	2	10
	50		25	9	3	13

The patients can be subdivided into those with primary and those with secondary Graves's disease, although this distinction cannot always be made with confidence. The essential disturbance that produces the thyroid intoxication is unknown, but is probably the same in both. In primary Graves's disease, however, there is no evidence of previous structural change in the thyroid gland; the characteristic histological changes are found throughout the whole gland, and the subjects are usually young adults. The signs of intoxication may be very severe; this group includes the typical cases of exophthalmic goitre with the eye signs, tachycardia, tremor, vasomotor, and nervous disturbances. In secondary Graves's disease the disturbance arises in a patient who has a damaged thyroid gland already, as shown by coarse or fine fibrosis, colloid goitre, local areas of degeneration, etc.; the histological changes characteristic of the disease are found distributed in a patchy manner, and the subjects are commonly more advanced in years. The signs of intoxication are usually mild, eye signs and vasomotor disturbances may be absent, but the functions of the other organs of the body may be seriously crippled, possibly because they are older. The patients with but slight evidence of thyroid intoxication, but with auricular fibrillation and heart failure, belong as a rule to this secondary group.

The classification of patients that were treated by non-surgical methods into the primary and secondary groups, reveals (Table II) that the good results are found mainly

TABLE II.—*Treated by Non-Surgical Methods.*

Type.	Total Number.	Average Age.	Results.			
			Good.	Poor.	Bad.	Died.
Primary	16	28 years	8	3	1	4
Secondary	10	47 years	2	1	1	6
	26		10	4	2	10

in the primary group (average age 28 years), and the mortality is greater in the secondary group (average age 47 years). Of the four fatal cases of primary Graves's disease, two patients died in hospital of conditions other than the thyroid disease, but the other two were young females, 15 and 25 years of age, who were not seriously ill when in hospital, but who did not remain under observation, and relapsed later and died at home. The six patients with secondary Graves's disease who died had an average age of 45 years; one, aged 39, had been ill off and on for twenty years and died shortly after admission with an acute severe intoxication; one, aged 53, died after discharge, but no operation was advised because of the presence of pulmonary tuberculosis; and the remaining four died after discharge in acute exacerbations of the thyroid disease, having refused operative treatment when in hospital. Of the six patients in whom the result is recorded as "poor" or "bad," two have since undergone operation and are now improving, and two others have refused operations. Of the ten patients in whom the result is recorded as "good," two, aged 65 and 36 years,

had secondary Graves's disease, were not seriously ill, and improved rapidly under treatment; the remaining eight were young females (average age 26 years) with primary Graves's disease, who either improved rapidly with treatment, or were in such domestic and financial circumstances as to allow of prolonged rest under supervision. In one of them the result could not be called "good" until as long as six years after commencing treatment, and as long as eleven years from the onset of the disease.

Those that received surgical treatment (Table III) can be classified about equally in the primary and secondary groups, with average ages of 29 and 44 years respectively.

Table III.—*Treated by Thyroidectomy.*

Type.	Total Number.	Average Age.	Results.			
			Good.	Poor.	Bad.	Died.
Primary	10	29 years	8	1	0	1
Secondary	14	44 years	7	4	1	2
	24		15	5	1	3

One only of the deaths occurred immediately after operation; the other two patients (aged 44 and 49 years) who died had one lobe only removed, and died later in acute relapses, three and six years following the operation. Of the six patients in whom the results are recorded as "poor" or "bad," one has recently had a third operation, at which the thyroid gland was found to have grown to a considerable size from the remnant left at the previous operations, and is now doing well. The remaining five may require further operative treatment also, but in their case there are factors that make a decision difficult.

Conclusions.

The number of patients is too small to be of statistical value, nor are the groups strictly comparable, but the results after periods varying from five to ten years after discharge from hospital confirm the impression gained from the experience with a much larger number that have not been under observation for so long, or have not been studied so carefully. The nature of the results in the patients treated by surgery will depend, of course, on the experience and skill of the surgeons available. The following conclusions, however, seem justifiable. Of patients whose condition is severe enough to require admission to hospital, surgical treatment is indicated in the present state of knowledge in those with secondary Graves's disease. It is indicated, also, in those with primary Graves's disease who do not improve rapidly, or who continue to relapse and become chronically ill in spite of satisfactory management, or who for financial or other reasons cannot submit to adequate observation and treatment. In a number of the younger patients with primary Graves's disease recovery takes place without surgical treatment, but observation and treatment extending over years may be necessary.

THE AFTER-HISTORY OF HEALED SURGICAL TUBERCULOSIS.

BY

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The treatment of non-pulmonary tuberculosis has passed through various phases in the last thirty years. In the earlier days treatment was mainly by operation, and tuberculosis was regarded as a local disease to be eradicated by painstaking removal. Hence, free and often elaborate excisions of joints were widely practised. In the end the unfortunate outcome as regards the local disease, no less than the frequency of disastrous functional results, caused the methods of radical excision and erasion to fall into deserved disuse.

This was hastened when it was realized that tuberculosis of a joint is not the primary condition, but is a pyaemic manifestation in a patient already infected in another spot. Obviously, if this view is correct—and there can be little doubt that it is—the most extensive local procedure will not cure the disease. In conformity with this view, treatment then swung over to conservative methods aiming to raise the resistance of the body by general treatment and handling the local condition by rest in the optimum position for a prolonged period. The results of this method are on the whole good, but they fall short of ideal, and in recent years the question of operative treatment has again been seriously raised by thoughtful surgeons.

It is clear that in the present state of our knowledge our main curative agent in tuberculosis is rest. The rest given by any form of external splint, however carefully applied, is at the best incomplete. If by operation we can induce ankylosis of a tuberculous joint, either by intra-articular or extra-articular technique, that joint will almost certainly heal. The object of the modern revival of operation is therefore not immediate eradication of disease, but ultimate cure by production of an ankylosis.

Any surgical method, however sound in theory, must in the end stand or fall by its results, and it is unfortunately very difficult to estimate with any accuracy the end-results in surgical tuberculosis. This communication has been written in no spirit of controversy, but simply with the object of contributing certain data which may be useful in any discussion of the respective merits of the conservative and operative methods. The author has had the advantage of treating this type of case during twenty-six years in one institution by conservative methods, involving, in addition to the usual resources of general treatment, a somewhat rigid fixation by plaster or appliance. In these respects the series has the advantage of being very homogeneous, but the difficulties in arriving at an accurate idea of the results are great.

The main stumbling-block is diagnosis. How is one to be sure that a given case is really tuberculosis? In the series here discussed all that can be said is that every care has been taken, by clinical examination, by skiagram, and, where available, by examination of aspirated material, before a diagnosis of tuberculosis was accepted. While the grosser errors—for example, syphilis, actinomycosis, haemophilia, the varying dystrophies of the type of pseudo-coxalgia, and the more obvious infective joints—can be eliminated, who is to say what other conditions may still be hidden in the dump we call surgical tuberculosis?

In a previous communication[1] I endeavoured to estimate the more immediate results of conservative treatment; the object of the present inquiry is to estimate, as far as may be, the ultimate fortune of those patients who are discharged as cured.

The investigation concerns a total of 170 cases of children who have been under my care for tuberculous disease of the larger joints. These patients comprise 67 suffering from disease of the spine, 71 with disease of the hip-joint, and 32 where the lesion was in the knee-joint. All these patients were discharged between the years 1906 and 1924 with the observation "apparently cured." None of the patients examined has been discharged from the institution for a shorter period than six years, and the length of time which has elapsed since their apparent cure ranges from six to no less than twenty-four years.

Of the 170 patients, I have been able to find 129, and their present condition is exactly known. The proportion of cases traced must be regarded as satisfactory when one considers the very floating nature of the population in a large industrial city.

In classifying the results, the method adopted is as follows:

Class A includes all patients found to be in good health with no sign of activity in the old disease and no fresh focus of tuberculosis. They are all either at work or quite capable of doing active work. These number 110.

Class B comprises cases in which there is complete arrest of the disease, as in Class A, but the functional result is not good; these patients, who number 7, must be regarded as cripples

Class C contains those cases which show the original disease in a still active form, or have had some other sign of tuberculous infection. Of these there are 6.

Class D includes patients who have died since discharge. There are 6 of these, and with one possible exception, in which death is stated to have been due to "influenza," they have all died of tuberculosis of lung or kidney.

The main fact which emerges is that out of 129 patients who are known, no fewer than 110 remain perfectly well. These figures are in welcome contrast to the gloomy views often expressed, which are usually the vaguest of impressions not backed by any actual figures. Pessimism in tuberculosis is due mainly to the fact that, as with other diseases, it is chiefly the failures that come back.

Finally, it is contended—and probably with reason—that operative treatment may shorten the length of the time needed for recovery. In this respect it is worth noting that the average residence in the institution of these 170 patients was three years and two months.

REFERENCE.

1The Results of Institutional Treatment in Surgical Tuberculosis. *British Medical Journal*, July 2nd, 1921.

RADIUM IN THE TREATMENT OF MENORRHAGIA AND IRREGULAR UTERINE HAEMORRHAGE.*

BY

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So much work has been done in the treatment of malignant disease by radiotherapy that it is easy to overlook the value of such treatment in non-malignant conditions, such as haemorrhage and menorrhagia caused by fibroids or associated with the menopause.

Twenty or thirty years ago students were taught that if a patient was diagnosed (after curettage) as having "menopausal haemorrhage" it was only necessary to use palliative remedies and to reassure the patient that all would be well in a year or so, when the "change of life" was over. In actual practice this meant that the unfortunate woman was doomed to a C3 life for several years, and only if she became dangerously anaemic was hysterectomy resorted to. Nowadays all that is entirely changed.

Diagnosis of Irregular Haemorrhage.

At the present time it would be superfluous to emphasize the importance of a careful physical examination if a patient complains of this symptom. Irregular haemorrhage is so often the first symptom of malignant disease that every student is taught that to treat a patient suffering from irregular haemorrhage or menorrhagia without such an examination is malpraxis almost amounting to criminal negligence.

It is unfortunate that the public is not equally aware of the importance of irregular haemorrhage and menorrhagia. It is true that very often such symptoms are of a temporary nature and have no serious consequences, and it is this fact that makes it so difficult to educate women to regard them as needing immediate attention. In the past the medical profession has contributed to this attitude of mind by the "wait and see" principle of treatment, which was very frequently adopted, especially in cases of menopausal haemorrhage.

What, then, are the rules which should be laid down for dealing with the patient who complains of menorrhagia or irregular bleeding? The first thing is to take a careful history, which, together with a general physical examination, will exclude such conditions as haemorrhage connected with pregnancy, high blood pressure, etc. Next, a physical examination of the genital organs, especially the cervix uteri, will exclude such conditions as carcinoma of the cervix, fibroids, etc. If there are no gross abnormalities, it is then permissible to treat the patient symptomatically for a week or two. If at the end of a month there is no improvement the uterus must be explored. Only after such exploration is it justifiable to say that the condition is due to an endocrine disturbance, such as is found at the time of the menopause.

Treatment.

Having now decided that the patient is suffering from an endocrine disturbance which is not benefited by drugs, the question of treatment will depend, first, on the age of the patient. If the patient is over 40 then there is no doubt that the right treatment is to create an artificial menopause by means of radiotherapy.

Before discussing the particular technique it is as well to consider the pros and cons of such a procedure. The advantage of getting rid of this troublesome symptom of haemorrhage once and for all is obvious, and borne out by the numerous letters of gratitude that one receives. What, then, are the disadvantages?

The objection, of course, is the onset of menopausal symptoms—namely, flushing, sweating, headaches, etc. The question has been asked whether these symptoms are any more pronounced in a menopause which is artificially produced than those which occur when nature brings about the menopause in the course of time. It is a point which it is almost impossible to solve by means of statistics, but my impression is that, after the age of 40, there is really very little difference.

If, however, the question arises of producing an artificial menopause in a patient under the age of 40, the problem is very different. First, there is an obvious objection to cutting short the youthful characteristics of such a patient at an early age. Secondly, there is some evidence that the symptoms caused are distinctly more severe than those found in patients over 40. It is true that in some of the young patients in whom those symptoms have been noticed the treatment has consisted of a small dose of irradiation, purposely administered in the hope of causing a temporary amenorrhoea, and it is possible that the increased symptoms are due to a partial destruction of the ovarian activity. The same sequelae have been observed in a patient who has had an operation leaving only a small portion of one ovary.

When once the decision has been made that it is advisable to create an artificial menopause, the question arises as to what method should be employed. There are two radiological methods by which the artificial menopause may be brought about: (*a*) radium, (*b*) *x* rays.

If a patient is suffering from irregular haemorrhage it is impossible without exploring the uterus to exclude a cause, such as malignant disease or a polypus. For this examination an anaesthetic is necessary, and under these circumstances the correct procedure is to place 50 mg. of radium in the uterus. If, on the other hand, the patient is suffering purely from menorrhagia, then it is fairly certain that the condition is not due to malignant disease. In these circumstances it is justifiable to use *x* rays without any exploration of the uterus, the advantage of this method being the fact that no anaesthetic is required, and the patient is not obliged to lie up in bed.

Technique of Radium Treatment.

The technique for using radium in the case of a patient who is over 40 is very simple. The patient is given an anaesthetic, and after a careful bimanual examination the uterus is dilated and carefully curetted. If nothing abnormal is discovered, then a tube containing 50 mg. of radium element, the length of which is not more than 2 inches, is placed inside the cavity of the uterus. The walls of this tube must be the equivalent of at least 0.5 mm. of platinum, and in addition it is better to screen the metal filter with 2 mm. of rubber so as to cut off secondary rays. The length of time which this tube should be left in is still a matter of controversy. The majority of gynaecologists consider twenty-four hours sufficient, but in a large uterus, with the ovaries near the pelvic wall, this sometimes fails to produce a permanent

* Read in opening a discussion in the Section of Radiology at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

amenorrhoea. At St. Bartholomew's Hospital we did a series using seventy-two hours, the results of which will be discussed later. We are now doing a series leaving the radium in for forty-eight hours, and this, in my opinion, is the optimum duration for the application.

Technique of X-Ray Treatment.

My colleague Dr. Finzi has sent me the following description of his methods.

"As used in England, *x* rays are generally employed in doses that will cause complete sterilization in patients over 38 or 40. Smaller doses have been used with the idea of reducing the menorrhagia, but their use is very tricky, and they take a long time to act. The larger doses will produce a temporary sterilization in younger patients, but there is then a danger that, if conception takes place when the ovaries are just beginning to recover, the offspring may be malformed, microcephaly being the most usual abnormality.

"The action of *x* rays is not entirely an action on the ovaries, but in the case of fibroids there is a direct action on these also.

"The method which I have used for many years and have found so satisfactory that I have not thought advisable to drop it as a routine, is a split dose, repeated method.

"A filter of 5 mm. of aluminium is used, 140 to 150 kilovolts (interrupted current), and a moderately full erythema dose is given to the skin. Two anterior ports of entry are used, and the applicator, applied with compression, is sloped, so that both ovaries get some of the rays. One or two posterior fields are employed, according to the stoutness of the patient, generally one. One of these fields is given on each of three or four successive days. This series of fields must be repeated on two further occasions, and it is most important that the beginning of the second series should be four weeks after the first, and the beginning of the third series four weeks after the second. The dose is slightly reduced for these subsequent treatments to compensate for the decreased tolerance of the skin.

"This method results in very little discomfort to most patients, and they can usually continue their ordinary avocations even during the treatment.

"The other method, which I employ for patients who live far away, is to sterilize in one treatment. This is a far more severe procedure for most patients. A filter of 0.5 mm. of copper or zinc is used, 180 kilovolts continuous current, and two, three, or four fields at a 30 cm. distance. Less than an erythema dose is needed.

"Whichever method is used, the result is very certain in competent hands. I have not failed out of more than sixty cases which I have treated myself.

"Compared to radium its action is slower, as there is no direct action on the mucous membrane of the uterus as with radium. One period, often very prolonged, is the rule after the first *x*-ray treatment and, during this, the menorrhagia is not diminished. A second period may occur, but is usually much less severe. A third period is very rare. This applies whether the single dose or the split dose technique is used.

"One advantage over radium is that *x* rays can be satisfactorily used with quite large fibroids. (My second case had a mass reaching the ensiform cartilage, and it gradually disappeared.)

"*X* rays, I find, is usually—not always—less trying to patients than radium in the uterus. The fact, however, that *x* rays can be used without an anaesthetic is rather a snag, as the examination under an anaesthetic may be necessary to determine whether there are any contraindications to the treatment."

Action of Radium in Producing Menopause.

It was at one time thought that radium brought about amenorrhoea in a different way to *x* rays. It was suggested that the radium acted purely on the endometrium, while *x* rays acted entirely on the ovary. This theory was upheld by Forsdike in his Jacksonian Essay, "The effects of radium upon living tissues." His evidence, however, that it is not due to destruction of the ovary, is a little confusing. He states that only two out of ten young women between the ages of 29 and 38 suffered from flushes. This certainly is a small proportion, but if even two suffered in this way, is it not evidence that the ovaries were affected?

Turning to his histological evidence, he bases this on sections of an ovary removed after irradiation. The experimental evidence, where radium was placed 8 cm. from the ovary, is certainly more convincing.

In my experience there is considerable evidence against the theory that radium acts only on the endometrium. For instance, in quite a large number of cases there have been two periods following the radium application. It might be argued that in these cases sufficient changes had not taken place in the endometrium to prevent the flow of blood, but if this is so, why did the same dose produce in some of the young women only a temporary amenorrhoea? It would be very difficult to explain these observed facts by an action on the endometrium, but it is not so difficult to explain them if we believe that radium acts on the ovaries. It is well known that menstruation is related to ovulation, and the Graafian follicle which is ruptured or is mature enough to be on the point of rupturing is not so readily affected by radium as the young rapidly growing follicle. In the elderly patient it is probable that the follicles that are likely to be associated with menstruation within the next few years are destroyed by the radium, but not those one or two follicles which are already mature, and this would explain the fact that patients sometimes menstruate once, or even twice, after irradiation.

Again, in the case of a young patient, the cells which will eventually become a follicle are not undergoing sufficient active metabolism to be affected by the rays, and therefore, a year later, will become mature follicles, and will then rupture to form a corpus luteum, which on degeneration will be associated with menstruation.

Discussion of Results.

The results of creating an artificial menopause are fairly well known; statistics obtained at University College have recently been published by Asherson.[1]

In this series, 63 cases were treated for menopausal menorrhagia. Of these 63, 55 were cured by one application of radium. Six required two applications, 4 were untraced, and 1 had a small dose without results. These patients were all over 40 years of age. Six of them required a second dose, compared with two in the Bartholomew's series, which suggests that the rather larger dose used in the latter institution is more certain in its results.

In the same series, 23 cases were treated for "essential menorrhagia." These are of particular interest. All of them were under the age of 40, and of these, 16 cases had a restoration of normal menstruation. Five cases had permanent amenorrhoea. The dose given to these patients varied from 50 mg. used for eight hours up to 50 mg. for fifty hours.

It is clearly shown from these results: (1) that the younger patients will stand a much bigger dose without producing amenorrhoea; (2) that this method of treatment must seriously be considered in certain cases even if the patient is under 40 before resorting to hysterectomy.

The disadvantage is the fact that, owing to the position of the ovary being unknown, it is impossible to be certain of getting a dose that will be efficient and yet not produce permanent amenorrhoea.

The other series recorded by M. L. Kreitmayer, in his paper on page 815, consisted of 122 cases treated at St. Bartholomew's Hospital. Of these patients, 97 were traced, and answered a questionary. As the author states, a questionary is not the ideal method of getting evidence, but the answers were sufficiently definite to justify publication. It is hoped that these patients will be persuaded to return to the hospital so that more details can be obtained.

It would appear from these figures that of 97 cases, 90 patients were cured with one dose, while 7 required further treatment. Of these 7, 5 were under the age of 40, thus bearing out the idea that it is more difficult to produce an artificial menopause in a young patient.

With regard to menopausal symptoms, the answers were not very definite; it would appear, however, that 15 patients had no flushes at all. Of those who had flushes, some have continued for as long as five years.

There is some controversy as to whether these menopausal symptoms are more severe after a menopause artificially produced than one occurring as a result of age. This, of course, is a very difficult problem to solve by statistics. It is my impression that there is little differ-

[1] *Journ. Obstet. and Gynaecol.*, 1929, xxxvi, No. 4, 778.

ence in patients who are treated over the age of 40, but that in the younger patients the symptoms tend to be more severe.

A question often asked by patients before submitting to this treatment is, "Shall I get fat?" It would appear from this series that 50 per cent. definitely put on weight, but details of how much are not recorded.

Another important symptom is the question of dyspareunia, which occurred in only 7 cases out of the 93; and loss of inclination was experienced in 8. In 31 cases it is definitely stated that the relations were unaltered. Forty of the remaining patients, however, were spinsters or widows, and in 5 the answers were too indefinite to be of value. The small number of cases suffering from dyspareunia suggests that there is no real trouble caused by cicatrization or adhesions in the vagina, in spite of the large dose—that is, 3,600 mg. hours.

TREATMENT OF FIBROIDS BY RADIOTHERAPY.

The treatment of fibroids may be divided under three headings—surgical, radiological, and palliative.

A few years ago the palliative treatment was frequently employed, especially when the patient was over 40 and approaching the menopause, with the idea that once the menopause was complete the symptoms of menorrhagia would cease and the fibroids diminish in size. Unfortunately this process often lasted over a period of several years.

Such treatment is now confined purely to cases where the patient is young, the symptoms very slight, the fibroids small, and where it is undesirable that the patient should have any drastic treatment until all hope of pregnancy is abandoned, when some more radical measure, such as myomectomy, is undertaken, which will not only relieve the symptoms, but may bring about fertility.

The indications for radiological treatment are at present somewhat limited. The majority of gynaecologists consider that, if the patient is over 40 and the symptoms are menorrhagia or irregular haemorrhage, and the fibroid is not sufficiently large to cause pressure symptoms—that is to say, not larger than a fist—and if there is no inflammatory condition in the pelvis, then such a case should undoubtedly be treated by radiotherapy.

The question then arises whether radium or x rays should be employed. Here, again, the rule is very much the same as in the case of creating artificial menopause. If the fibroids are associated with irregular bleeding it is essential that the uterus should be explored. Fibroids are very frequently associated with sterility, and it is in the nulliparous patients that carcinoma of the body is most likely to occur. If, therefore, the uterus is to be explored in order to exclude malignant disease, then a 50 mg. tube of radium element should be inserted into the body of the uterus to bring about an artificial menopause and thus to stop the symptoms of haemorrhage due to the fibroid.

On the other hand, when the fibroid produces pure menorrhagia, it is quite justifiable in such a case to use x rays, as mentioned in the preceding section.

CONCLUSIONS.

1. In cases where the patient is over 40 years of age and suffering from irregular haemorrhage without a gross pathological lesion, the production of an artificial menopause by means of radium is the treatment of choice if drugs fail.

2. The optimum dose of radium seems to be 50 mg. of the element screened with not less than 0.5 mm. of platinum and kept in the uterine cavity for forty-eight hours.

3. In cases where the patient is over 40 years of age and suffering from pure menorrhagia without any gross pathological lesion, x rays should be considered as an alternative method of producing an artificial menopause.

4. In young women, where other treatment has failed to cure the symptom of uterine haemorrhage or menorrhagia, radium has been used successfully to cure this symptom, but there is a risk of permanent amenorrhoea and severe menopausal symptoms, which perhaps makes subtotal hysterectomy perferable in the majority of cases.

AFTER-EFFECTS OF INTRAUTERINE RADIUM FOR THE PRODUCTION OF ARTIFICIAL MENOPAUSE.

Report of an Investigation.

BY

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(From the Gynaecological Department of St. Bartholomew's Hospital.)

THE present investigation was undertaken at the suggestion of Dr. Malcolm Donaldson in order to obtain definite figures for the degree of success of the primary objective—that is, the production of amenorrhoea—and also to gain some idea of the nature of the sequels, such as menopausal symptoms. The cases in the series were all treated in the gynaecological department of St. Bartholomew's Hospital during the years 1925 to 1929 inclusive, under the care of Dr. J. Barris, Dr. M. Donaldson, and Dr. W. Shaw, to all of whom I offer thanks for permitting me to have access to the notes. Essentially the type of case treated was that in which there was excessive or irregular uterine haemorrhage with no gross abnormality detectable on visual and bimanual examination under anaesthesia. The majority of women treated were near the menopause. A small proportion were women of under 40 years of age suffering from menorrhagia, and one patient was treated for dysmenorrhoea. In no case was there found any evidence of malignant disease.

TECHNIQUE.

With the patient anaesthetized and in the lithotomy position the vagina and cervix were first inspected, and then a careful bimanual examination was made. The cervix was then dilated, and curettage for section performed. The radium in its container was then inserted, and kept in position by gauze packed into the vagina.

The dosage usually given was 50 mg. element screened by a minimum of 0.5 mm. thickness of platinum, and kept in position for seventy-two hours; in other words, a dosage of 3,600 mg. hours. Of the 97 patients forming the present series, 53 received this amount, but 1 patient received as little as 480 mg. hours, and 3 as much as 7,200. The dosage in the remainder fell between these limits. The ages of the patients ranged from 20 upwards; 3 were in the twenties, 14 in the thirties, 57 in the forties, 22 in the fifties, and 1 was in the sixties.

The actual number of patients treated was 122, but of these only 97 were traced; each of these received a questionary accompanied by a letter suggesting that she should consult her doctor if she had any difficulty in making out the answers. It was hoped in this way to minimize inaccuracies. The questionary was as follows:

A. Have you had any bleeding or monthly period since your radium treatment?
   If so, When did it start?
   When did it finish?
   How often did it occur?
   Give dates if possible.
B. How do you feel in yourself?
   Do you feel better or worse since your radium treatment?
   Do you feel the same as before your radium treatment?
C. Have you had any "hot flushes" since your treatment?
   If so, how often did they occur?
   How long ago did they end?
D. Have you had any sweating?
   How long do the sweats last?
E. Have you suffered from depression since the treatment?
   If so, for how long?
F. Are you more cheerful?
   Are you more irritable?
   Are you more depressed?
G. Have you put on weight or lost it since your treatment?
H. Have you had any pain since your treatment?
   If so, where was the pain?
I. Have your relations with your husband altered since the treatment?
   If so, how?
K. Have you had other trouble since the treatment, such as discharge (such as whites), pregnancy, indigestion, headache, nerves?

The following is an analysis of the replies.

Question A.

All the patients answered this question, 47 reporting no bleeding at all following the treatment, and 50 some

bleeding of varying severity. The 7 of whom particulars follow required further treatment.

A. B., aged 35, was treated in August, 1926, with 10 mg. element applied for forty-eight hours; she had severe recurrence, and hysterectomy was carried out in another hospital.

C. D., aged 29, was treated in January, 1929, with 50 mg. for seventy-two hours; she had a severe recurrence, and hysterectomy was carried out in July, 1929.

E. F., aged 37, was treated in January, 1929, with 49 mg. for ninety-six hours; she had severe recurrence, and hysterectomy was carried out in October, 1929.

G. H., aged 33, was treated in June, 1926, with 50 mg. element for ninety-six hours, and in May, 1927, she was treated for recurrence by means of *x* rays. Since then she has had amenorrhoea, except for some bleeding in August and September, 1929.

I. K., aged 44, was treated in May, 1927, with 50 mg. element for seventy-two hours; a recurrence was treated in September, 1927, with the same dose, and since then the patient has had amenorrhoea.

L. M., aged 38, was treated in April, 1928, with 50 mg. for seventy-two hours. In January, 1929, a recurrence was treated with the same dose, and since then the patient has had amenorrhoea.

N. O., aged 40, was treated in December, 1927, with 50 mg. element for fifty-two hours. A recurrence was treated in May, 1928, with 50 mg. element for forty-eight hours; since then she has had occasional bleeding, but diminishing in amount.

The after-history of the remaining 43 is as follows: 5 had slight bleeding immediately following the treatment; 25 within the first two months, and 3 within three to six months; 7 had occasional bleeding from six to eighteen months after treatment. In these 40 cases bleeding has now stopped. In 2 cases treated in 1928 with 50 mg. element for seventy-two hours bleeding still occurs at irregular intervals, but no further treatment has been carried out. The remaining case was treated in December, 1925, for dysmenorrhoea with 50 mg. element for seventy-two hours. There was some bleeding from January to March, 1926, and then amenorrhoea till January, 1929. Since then periods have occurred, not excessive in amount, at the normal rhythm of twenty-eight days; dysmenorrhoea has disappeared.

Question B.

This question was answered by 93 patients; of these 76 say they feel better, 3 that they feel worse, and 10 that their condition is unchanged. No definite conclusion could be derived from 4.

Question C.

This question was answered by 93 patients, but on the whole the answers were vague. It seems clear that of 77 who have had flushes 62 still have them, and of the remaining 15, 6 state that the flushes have ceased, and 9 have failed to answer this part of the question. In the 6 cases from which this symptom has disappeared the flushes persisted after treatment for a period ranging from six months to three years.

Question D.

The purport of this question does not seem to have been quite clear to the patients, but 52 state that they have had sweats, and 39 that they have had none; the remainder give indefinite answers. The average duration of sweats appears to have been five to ten minutes, but there are no data about their frequency.

Question E.

Of those who give definite answers to this question, 59 state that they have suffered from depression, and 32 that they have not. Only 21 attempted to answer the second part of the question, and of these 8 state that the depression lasted for periods varying between one and twelve months after treatment, 2 that it lasted for two years, 4 that it lasted for three years, 5 that depression is experienced occasionally, and 2 that it is experienced frequently.

Question F.

Definite answers were received from 75 patients, 43 of whom claim to have been more cheerful, 22 more irritable, more depressed, or both, and 10 unchanged in spirits since the operation.

Question G.

Answers were received from 79 patients, of whom 46 have gained weight, 18 have lost weight, and 15 said that their weight is unchanged.

Question H.

To this question there were 91 definite replies; 52 patients said that they have had pain since the operation, 39 that they have not; of the former, 27 state that the pain has been in the lower abdomen, lower part of the back, or groins, 19 that it has been in the head, arms, chest, etc., and 6 are vague on the subject.

Question I.

To this question the replies of 40 of the patients were irrelevant, as they were spinsters, widows, or others who for some reason had had no sexual relations since treatment. Of the remainder, 31 stated that their relations were unaltered, 8 that they had lost inclination, 7 that they suffered from dyspareunia, and 2 that they bled after coitus; 5 were indefinite.

Question K.

To this question the answers are necessarily varied; 41 complain of discharge, though many of these state that the discharge only lasted for a short time after treatment; 41 complain of indigestion, 54 of headache, and 54 of nerves. None have become pregnant.

ANALYSIS OF RESULTS.

It will be seen that from the point of view of the production of amenorrhoea the treatment has been satisfactory, but it is worth while analysing the nine cases in which the initial dose of radium failed to bring about a cure. In this group six of the patients were under 40, one was 40, and two were between 40 and 50. Only one of the six under 40 had received a small dose—namely, 480 mg. hours, the remainder receiving 3,600 mg. hours or over. The patient aged 40 received 2,600 mg. hours, and the other two 3,600 each. Estimating failures as a percentage of patients within the same age group it will be seen that 35.3 per cent. of failures occurred in the cases under 40, and 3.75 per cent. in the cases over 40. The series is too small to generalize from, but the figures accord with the view that the younger the patient is the more resistant are her organs likely to be to the effects of radium.

The fact that 77 of the patients complain of flushes, 52 of sweats, 59 of depression, 54 of headaches, and 54 of nerves, suggests that menopausal symptoms are prominent sequels of the treatment. In spite of these menopausal symptoms, however, 76 of the patients said that they are better, 10 that they feel just the same, and only 3 that they are worse. Although a large proportion complain of pain, one cannot say how much of this is due to the treatment, or even if the pain was present or not before the treatment.

PNEUMONOCONIOSIS DUE TO FLUE DUST.

BY

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THE special interest of the following details turns on the fact that we have been unable to trace a similar case in medical literature.

A post-mortem examination was performed on a man, aged 35 at the time of his death. Between the ages of 14 and 25 he had been employed as a riveter in a boiler works. For the subsequent nine and a half years he had been a boiler cleaner, an occupation which included flue cleaning.

There was no family history of tuberculosis, and except for an attack of pneumonia in 1917, and again in 1918 (probably influenzal), and an attack of influenza in December, 1929, his previous health had been good. In May, 1930, his teeth were extracted for pyorrhoea. On July 1st he complained of hoarseness and lassitude, and ceased work. At the beginning of August he was placed under the care of the district tuberculosis officer. Up to August 11th his sputum had been examined for tubercle bacilli on six occasions with negative results, but it was found positive on five subsequent occasions.

An *x*-ray examination on August 13th revealed scattered mottling throughout both lungs, especially dense on the left, and the view expressed by the tuberculosis officer was

that the appearance was suggestive of advanced silicosis. The patient died on September 5th, and a necropsy was performed on the next day.

Macroscopical Appearances.

There were dense pleural adhesions on both sides of the chest. The right lung was almost coal-black in colour; small, hard nodules were found along its anterior border and throughout its substance. Several small cavities were present at the apex; they were smooth-walled, and surrounded by dense fibrous tissue. The lung generally was fibrosed, and small scattered areas of broncho-pneumonia were visible. The left lung was voluminous, heavy, and dark grey in colour. Small, hard nodules were present throughout its substance, which was markedly fibrosed. At the apex were several small cavities with thick walls. The rest of the lung was the seat of extensive broncho-pneumonia.

The bronchial glands were enlarged, black in colour, but not very hard. The heart muscle was pale and soft, and the mitral valve was sclerosed and incompetent. The liver was in the condition of chronic passive congestion with fatty change.

Microscopical Appearances.

Both lungs showed the condition of well-marked pneumonoconiosis with extensive areas of fibrosis and obliteration of the smaller bronchi and vessels. There was an excessive amount of dust in the fibrotic areas, and dust cells were present in large numbers throughout the sections. The alveolar walls were fibrosed and thickened, and contained dust deposits and dust cells. Caseation was occurring in some of the fibrotic areas, certain of which showed giant cells and an atypical picture of tuberculosis. In the right lung small areas of broncho-pneumonia were present. The histological appearance of the left lung differed only in degree from that of the right. The fibrosis was more marked, and the broncho-pneumonia, which was undoubtedly of tuberculous origin, was very much more extensive. The bronchial glands showed some fibrosis, and fine dust particles were scattered throughout the sections.

Portions of the lungs were digested with trypsin, and the mineral matter was examined microscopically. In addition to an excessive quantity of fine granular dust, much of which was carbonaceous, large dark angular particles were seen, and also flat mica-like and small transparent crystalline particles of silica or silicates, which ranged in size from the order of the ultra-microscopic to 60 or more microns in length. Some of the mica and crystalline particles were coloured red from the presence of iron. Under the polarizing microscope the mica and silica particles were seen to be doubly refracting. Similar particles were present in the flue dust in which the patient had worked. Sections of both lungs and of the bronchial glands showed, under the polarizing microscope, a large number of doubly refracting particles, presumably silica or silicates.

From the history and the examination of the lungs there can be little doubt but that the pneumonoconiosis preceded the tuberculous infection by many years.

Chemical Considerations.

Chemical analysis of the lungs, boiler scale, and flue dust were made by Mr. T. H. Byrom, F.I.C. The following tables indicate the components in 100 grams of the dried material.

	Left Lung.		Right Lung.	
	Grams.	Percentage of Ash.	Grams.	Percentage of Ash.
Insoluble siliceous matter ...	0.142	3.03	0.178	3.56
Soluble siliceous matter ...	0.181	3.86	0.156	3.12
Total siliceous matter ...	0.320	6.89	0.334	6.68
Ferric oxide	0.120	2.56	0.450	9.00
Alumina	0.430	9.18	0.430	8.60
Phosphoric anhydride ...	0.380	8.12	0.546	10.92
Calcium oxide	0.017	0.36	0.025	0.50
Magnesium oxide	0.030	0.64	0.042	0.84
Sulphuric anhydride	0.070	1.50	0.073	1.46
Alkalis	3.320	70.75	3.100	62.00
	4.690	100.00	5.000	100.00

	Boiler Scale.	Flue Dust.
	Per cent.	Per cent.
Insoluble siliceous matter	6.40	26.40
Soluble siliceous matter	3.90	6.00
Total siliceous matter	10.30	32.40
Ferric oxide	3.42	27.17
Alumina	1.68	14.12
Calcium sulphate	57.13	21.14
Calcium carbonate	3.60	Trace
Magnesium hydrate	17.80	3.18*
Combined water	4.60	Nil
Carbonaceous matter	1.00	Nil
Phosphoric anhydride	0.074	0.16
		2.5†

*Magnesium oxide. †Ferrous oxide.

The insoluble siliceous matter in the flue dust contains, in addition to quartz grains, many acicular crystals and flat plates, both transparent and opaque, probably of micaceous and feldspathic origin, derived from the shale and other inorganic material from which the flue dust has been formed. The occupation of boiler cleaner where Lancashire boilers are used includes flue cleaning. The latter is by far the more dusty part of the work, and was undoubtedly the primary cause of the pneumonoconiosis.

It is of interest to note that three boiler cleaners are employed at the particular colliery at which the deceased worked. During the past twelve years twenty-seven men have been employed, and have given up the work; of these, two are known to have died—one the subject of this communication, and another the cause of whose death is unknown. One worked only one day, and another one week. Excluding these four, the average duration of employment was fifteen months. Including the two dead, the average period of work was twenty months. The deceased man had worked the longest period, 113 months, the nearest approaching that time being thirty-six months. There is, however, a man still employed who has been at the work for sixty-two months.

TECHNIQUE IN ENDOTRACHEAL ANAESTHESIA.*

BY

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Not many years ago the administration of an endotracheal anaesthetic was outside the routine of the operating theatre. Its introduction excited such interest as would be accorded to the performance of an unusual or difficult operation. It is not improbable, perhaps, that the procedure was at first regarded as an unnecessary complication. Doubtless also the patience of many a surgeon has been sorely tried on a busy operating day by the first attempts of his anaesthetist.

Within recent years the advantages of the method have become widely known. Surgeons are increasingly anxious to avail themselves of these advantages, and many expert anaesthetists in England now employ the method as a routine for operations which formerly involved many anaesthetic difficulties.

Nevertheless, in some hospitals endotracheal anaesthesia is not available when required; in others, the results compare unfavourably with those obtained by older and more orthodox methods. Since the method can no longer be considered new—and if we grant that it has advantages—it is apparent that there must be some drawbacks to its unqualified employment.

*A paper read in opening a discussion in the Section of Anaesthesia at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

Importance of Intubation Technique.

In modern scientific work some of the most valuable advances have been the outcome of a study of technique. It is my intention to apply this principle to the present subject, and to point out that most of the advantages of endotracheal anaesthesia are available if the anaesthetist will trouble to master the technique of intubation; if he does, the disadvantages become insignificant.

Advantages and Disadvantages.

The veriest novice knows that many of the difficulties in anaesthesia arise from a defective airway. Whatever the cause, the syndrome is familiar—cyanosis, rigidity, laboured respiration—a vicious circle that is a heavy tax on patient, surgeon, and anaesthetist. The ease with which an anaesthetic can be administered through a tracheotomy tube is an obvious contrast.

It may be argued that in many cases such difficulties do not arise, and that in others the error can be rectified by the insertion of a pharyngeal tube of some sort. But such a device cannot prevent obstruction at the larynx, and the anaesthetist must be constantly on his guard against such an occurrence. In operations which do not actually increase the possibility of respiratory obstruction by their nature or situation, most of us are prepared to take the risk.

A free airway can be established as a rule without interfering with the progress of the operation. In those cases, however, in which endotracheal anaesthesia has proved itself most useful, there is no excuse for the anaesthetist who does not establish absolute control of the larynx before the surgeon operates. This control can be secured at once by intubation, with the following results. (1) The airway is free under all conditions. (2) The patient can be protected against the entry of blood into the trachea. (3) Control of the larynx makes it possible to maintain a light and even anaesthesia. (4) The surgeon can be protected from the anaesthetic-laden exhalations of the patient. It is apparent that the provision by intubation of an airway that is practically proof against obstruction is the fundamental principle of the method.

I wish to stress this point. Many of us associate endotracheal anaesthesia with the true insufflation principle as described by Meltzer, Auer, and Elsberg. I hold that with the exception of those operations in which positive pulmonary ventilation is essential to life, low pressure, or no pressure, gives adequate results. Therefore elaborate apparatus is not absolutely necessary in every case. The chief disadvantages are: (1) the risk of possible trauma by the anaesthetist, and (2) the delay involved by intubation. The importance of dexterity in intubation is now obvious, and I propose to give you the results of my own experience.

Position of the Patient's Head.

Some of the chief difficulties which arise during intubation for anaesthetic purposes may be traced to a faulty position of the patient's head. Hyperextension as adopted by some surgeons for bronchoscopy is not only unnecessary in most cases, but actually increases the difficulty of the procedure. The position of the head in relation to the neck and trunk should be the same in the recumbent as in the erect position; this may involve the insertion of a pillow below the occiput. When the position on the table is correct, the cervical vertebrae are in normal relation to the dorsal vertebrae and are not extended. The head itself is slightly extended on the atlas, thus bringing the mandible into a position approximately at right angles to the table. These, in fact, are the relative positions of the air passages instinctively adopted by a man standing in the normal erect position when he scents the air. The natural air passage from nose to glottis is at its freest when such a position is adopted, the nose being the natural human respiratory passage.

Let us consider a mesial section through the head and neck in this position. It is clear that the course of the air passage from nostril to glottis is a curve. A rubber tube with a similar curve, or a catheter mounted on a curved stylet, can be made to follow that course quite naturally, and will enter the glottis in a large percentage of cases; in fact, it will enter the glottis more readily than the oesophagus. If a similar curved tube is passed through the mouth while the head is in the position I have described, it will almost invariably enter the oesophagus.

Intubation can be carried out through the mouth or through the nose, according to the site of the operation. In either case the position of the head is the same.

Intubation through the Mouth.

When the oral route is selected I prefer to pass the tube by direct vision with the aid of a speculum. This instrument should have a wide slot at the side. A self-contained battery in the handle is a convenient means of illumination.

With deep anaesthesia associated with complete muscular relaxation and absence of reflexes in the throat, intubation through the mouth is easily performed. But deep anaesthesia, such as is obtainable with ether, should be avoided if possible. The aim of most of us is to exclude ether, or at any rate to limit its use to a minimum.

When intubating through the mouth under light anaesthesia certain precautions facilitate the procedure and also prevent trauma.

1. Preliminary cocainization of the pharynx and vocal cords with a fine nebulizer is of first importance. This can be carried out before induction, or while induction is in progress. The tendency towards reflex contraction of the pharyngeal muscles on passing the speculum is thus greatly diminished, and the glottis usually remains open. I do not propose to discuss the obvious objections to this practice. I have employed it for over ten years without any cause for regret.

2. The teeth require particular protection under light anaesthesia. It is best to insert a mouth prop before induction, and to protect the point where the speculum rests with a piece of sheet lead.

3. On passing the instrument into the mouth the tongue should be manipulated to the left side, away from the slot; otherwise the organ may roll into the barrel and completely obstruct the view. When the glottis appears, intubation should not be attempted unless the cords are apart. Forcing a passage through the closed glottis is not only difficult, but likely to give rise to post-anaesthetic sore throat.

Difficulty in obtaining a view of the glottis with the speculum can frequently be overcome by moving the proximal end of the instrument towards the right corner of the mouth. This manœuvre permits the necessary extra elevation of the tip, and is preferable to hyperextension of the cervical vertebrae by lowering the head of the patient. In my experience, the latter alteration in position is more likely to increase the difficulty than to alleviate it.

Intubation through the Nose.

I have described elsewhere[1] a method of passing rubber tubes and catheters into the trachea by picking up the ends in the pharynx with the aid of a forceps and direct vision laryngoscope.

I have referred also to what I have called "blind intubation,"[2] which is performed without opening the patient's mouth. "Blind intubation" through the nose is, in my opinion, the most valuable manœuvre in the whole technique, and, as nasal intubation is so frequently of value in intra-oral operations, I propose to consider it fully. It has two advantages: (*a*) that it can be carried out under light anaesthesia without muscular relaxation (one might even go further and say that light anaesthesia is advantageous, as tonus of the jaw muscles actually draws the epiglottis away from the posterior pharyngeal wall); (*b*) that there is no risk of damage to teeth or growths by the speculum.

If you recollect my observations on the correct position of the patient's head, the facility with which intubation can be performed in this way is apparent. It is so easy

in most cases that when a free choice is presented, and when there is no contraindication, I always select the nasal route. This experience has also been borne out while teaching students.

Technique of "Blind Intubation."

It is clearly essential that free nasal breathing should be present on at least one side, and where a difference in degree exists the side which is most patent should be selected. This point should be determined before induction. Cylindrical gum elastic catheters up to size 23 (French gauge) can usually be passed through the adult nose without causing injury. It is inadvisable, in my opinion, to use a larger tube of this or any other hard material, if trauma and bleeding are to be avoided. Catheters require a wire stylet bent in the form of a semicircle.

Commercial rubber tubing is the most satisfactory material. It is cheap and easy to obtain. It is firm enough to maintain its patency and sufficiently resilient to pass over mucous membranes without causing injury. Moreover, in the process of manufacture and subsequent storage in coils, rubber tubing becomes naturally curved. This curve is essential if the tube is to follow the course of the airway from nose to larynx. It also obviates the necessity for a wire stylet.

The tube should be cut obliquely, sterilized, and lubricated with soft paraffin. It is then passed along the floor of the nose close to the septum. The course of the tube should be mentally visualized as is that of the needle in regional anaesthesia. When a point is reached at which the respiratory sounds are heard at maximum intensity the tube will usually enter the glottis if pushed onwards during inspiration. In the case of failure, before resorting to the speculum and forceps, rotation of the tube to one side or the other will frequently bring its end into the desired position. Occasionally, gentle manipulation of the larynx with the left hand may be required in addition. In certain cases where the epiglottis is the obstacle the difficulty can be overcome by withdrawing the tube one inch and rotating it so that the concavity is posterior. If pushed onwards in this position the end of the tube will frequently pass behind the epiglottis. On again rotating to the original position with the concavity anterior the free end will enter the larynx.

The commonest question I have had to answer in demonstrating this manœuvre is: "How do you know the tube is in the trachea?" It seems to me obvious that if a tube 26 cm. in length is passed through the nose in its entirety the presence or absence of the free ingress and egress of air through the lumen is sufficient evidence of its position. Should the tube be in the œsophagus, or coiled up in the pharynx, no breath sounds are audible at the outer end.

Maintenance of Anaesthesia.

Having laid down the principle that intubation is of fundamental importance in endotracheal anaesthesia, I shall now consider maintenance. Here there is a choice of methods.

1. In the classical method of Elsberg a catheter is used for intubation, and air or a mixture of anaesthetic gases delivered under sufficient pressure to prevent collapse of the lung (even though both pleural cavities are opened) and to prevent also the entry of pus or blood into the trachea at any phase of respiration. Expiration takes place around the catheter, and if the pressure is effective the clinical picture is not always a pleasant one. The constant bubbling and spraying of blood by the return current obscures the operative field, and as the pressure cannot be reduced with safety if there is any possibility of blood reaching the trachea the obstruction to expiration becomes a strain on the patient. The surgeon also gets the full blast of the anaesthetic.

2. This method[3] comprises the use of a catheter and, in addition, an expiratory tube, which obviates most of the difficulties associated with insufflation through a single catheter. It should be remembered that the return current no longer drives blood away from the larynx. An effective pharyngeal gauze pack is therefore essential.

3. In this method intubation is carried out with a tube the calibre of which is sufficient to allow free to-and-fro respiration. The tube may be made of metal, of gum elastic, or of commercial rubber.[2]

Anaesthesia can be maintained on ordinary inhalation principles, and the system may be open or closed.

Several appliances and variations of technique have been devised in connexion with this method. Flagg's metal cannula commends itself on account of its simplicity. The Guedel and Waters inflatable bag provides absolute security against the entry of blood into the trachea, besides other advantages. Unfortunately, however, neither of these appliances can be used through the nose, and I trust that I have clearly pointed out the advantages of the nasal route for intubation.

Material Recommended for Intubation.

The material I have found to be most generally useful for intubation is commercial rubber, for reasons already stated. About six sizes are necessary, varying from 3/16 to 3/8 of an inch in calibre. The largest tube which the larynx will comfortably accommodate should be used. An exception is made in the case of infants under one year, for whom it is difficult to obtain a rubber tube with a wall which is thin enough and firm enough to maintain is patency under varying conditions of external pressure. For these children I use a special thin-walled gum elastic catheter, size 7 (English gauge), and have found this satisfactory.

Apparatus for Maintenance of Anaesthesia.

As already stated, when intubation is carried out anaesthesia can be maintained, if necessary, without any apparatus other than a drop bottle and a piece of gauze over the outer end of the tube. My own preference is nitrous oxide and oxygen with a minimum amount of ether. This mixture seems to me to compare favourably with ethylene. I use any efficient apparatus that is available in hospital work, but as bulk and portability are considerable factors in the conditions under which anaesthetists work in England I find a small continuous flow apparatus of my own design to be most useful. It is provided with a half-gallon bag of thin texture close to the machine and a delicate spring expiratory valve close to the patient. This valve is connected by a metal elbow to the tube in the trachea. I endeavour to interfere as little as possible with the normal respiratory mechanism of the patient. Low pressure is used as a routine, but ample high pressure is immediately available in case of emergency.

In every case gauze packing is used to ensure that breathing takes place through the tube and not outside it, and also to prevent blood from reaching the trachea. If carefully placed around the tube in the pharynx this packing is sufficient for practical purposes. In operations upon the nose the gauze keeps the soft palate in close apposition to the posterior wall of the pharynx. This method of packing is more effective than gauze or sponges in the post-nasal space, and is less likely to cause discomfort after operation.

Summary.

1. The fundamental principle of endotracheal anaesthesia is the provision by intubation of an airway that is proof against obstruction.

2. High-pressure insufflation is usually unnecessary.

3. Deep anaesthesia is not essential for intubation.

4. Dexterity in intubation minimizes the disadvantages.

5. Owing to the greater ease with which intubation can be performed through the nose this route should always be chosen when possible.

References.

[1] Magill: *British Medical Journal*, 1920, ii, 670.
[2] Idem: *Proc. Roy. Soc. Med.*, December, 1928, vol. xxii (Section of Anaesthetics, 4).
[3] Idem: *Lancet*, 1923, ii, 225.

THE NOSE AND THROAT IN RELATION TO ORBITAL AND OCULAR DISEASE.

BY

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In this article only such conditions will be described as have their origin and points of attack in the nose and throat. The diseases under this heading are all inflammations in which the eye changes, though often the first to appear, are nevertheless only secondary to foci of gross infection in neighbouring structures. It is to emphasize and familiarize these important relationships that these notes are put together.

Anatomical Considerations.

The spread of infection from the nose and throat to the eye may take place along any of the usual channels; but as in one or two important instances such spread is direct, it is necessary to appreciate the anatomy of the parts and, in particular, the anatomy of the accessory nasal sinuses which are grouped round the orbital cavities.

The major part of the skeleton of the nose may be regarded as suspended from the base of the skull between the two orbits, and several bones on either side enter into the formation of both structures. These bones are the sphenoid, ethmoid, maxilla, palate, frontal, and lacrymal. The os planum of the ethmoid forms the largest part of the inner wall of the orbit, and attached to it on the nasal aspect is the lateral mass enclosing the anterior, middle, and posterior groups of the ethmoidal air cells. These air cells are incomplete in parts in the disarticulated bone, and in life are closed in by neighbouring structures. On the upper surface a few half-cells of the middle group are completed by similar half-cells on the under surface of the orbital plate of the frontal bone bordering the ethmoidal notch. The anterior or infundibular cells are completed by the lacrymal bone and maxilla, where they form the anterior part of the inner orbital wall. The posterior ethmoidal cells open into the spheno-ethmoidal recess where they are opposed to the conchae covering the sphenoidal air sinuses.

The anterior ethmoidal artery, though a vessel of no great size, is of considerable importance in the group of diseases under consideration, owing to its anatomical position. A branch of the ophthalmic artery, it runs inwards and leaves the orbit by passing with its accompanying vein and the nasal nerve through the anterior ethmoidal canal. This canal lies between the cells on the upper surface of the lateral mass of the ethmoid, and is commonly completed by the articulation of the orbital plate of the frontal. From this canal the artery emerges on to the cribriform plate lying under the dura of the anterior fossa, whence it runs forwards, and piercing the bone at the side of the crista galli enters the cavity of the nose, where it lies on the deep surface of the nasal bone. The antrum of Highmore lies immediately beneath the orbit, and its roof, formed by the orbital plates of the maxilla and palate, is also the floor of the orbit. In its roof is a canal containing the infra-orbital nerve and vessels, the latter joining the parent trunks in the spheno-maxillary fossa. The antrum opens into the nose in the middle meatus. All the accessory nasal sinuses open into the nose and are at any time liable to become infected from the nasal passages.

Orbital Cellulitis.

The first condition to be dealt with is orbital cellulitis. It is unfortunately true that its relationship to ethmoid or other sinus disease is far from being generally appreciated, yet apart from cases caused by penetrating wounds of the orbit, orbital cellulitis is practically always secondary to inflammation in the ethmoidal cells. Its treatment therefore lies essentially in the hands of the nasal surgeon. Simple drainage operations on the orbit frequently fail to save the life of the patient, and still more frequently leave a persistent discharging sinus. Orbital cellulitis is a complication of acute, but rarely of chronic, sinus inflammation, in spite of the fact that chronic ethmoiditis, characterized often by the formation of nasal polypi, is a very common disorder. The reason for this anomaly will be found in the discussion to follow on the mode of spread of the infection.

Following the rules governing the spread of infection elsewhere in the body there are three possible routes—namely, the blood stream, the lymphatics, and some direct path. There is no suggestion that infection is via the blood stream, except perhaps as a terminal event when a widespread dissemination may take place from one of the larger venous sinuses. Spread by lymphatics may also be excluded, as the parts are but poorly supplied with lymph vessels, and there is no connexion demonstrated between the orbital and ethmoidal symptoms.

A direct spread is the one that almost certainly takes place, and there are one or two alternative routes even here to be considered. A possible route is through the os planum, but although this is a very thin plate of bone, it is fairly tough; moreover, experience in operating on these cases nearly always reveals it intact. There is no evidence that, save in neglected cases, it allows the passage of infection.

The most probable path is that along the line of the ethmoidal vessels, and there are several points strongly in favour of this view. There is a ready-made communication in the ethmoidal canal between the ethmoidal and the orbital cavities. The pus found in the orbit in cases of orbital cellulitis is always in the upper and inner part of the cavity—that is, about the opening of the anterior ethmoidal canal. Furthermore, the passage of infection by this route accounts satisfactorily for two of the most common and important complications of orbital cellulitis—namely, cavernous sinus thrombosis and meningitis.

The mere presence of a collection of pus in the orbit is not in itself sufficient to cause thrombosis of the veins in the neighbourhood, and of the sinuses into which they drain, but such a condition would readily arise as the result of a spread of thrombosis along the radicles and trunk of the ethmoidal vein, which opens into the ophthalmic vein, and so into the cavernous sinus. It is worth noting here the parallel way in which cavernous sinus thrombosis may arise from sepsis on the face by spread along the infra-orbital vessels. It has already been noted, too, that part of the course of the ethmoidal vessels lies under the dura covering the cribriform plate. In this situation the dura is perforated by the olfactory roots, and affords a portal of entry for infection from a septic phlebitis such as obtains in the conditions under consideration. Meningitis occurs quite frequently in fatal cases of orbital cellulitis, and is evidenced by intense headaches, and, more typically, by hyperpyrexia.

Although the ethmoidal air cells have alone been considered as the starting point of orbital cellulitis, this condition may nevertheless complicate acute infections in the frontal sinus and the sphenoidal sinus, though less frequently. Quite often both frontal and ethmoid, or sphenoid and ethmoid, are affected together.

The above account is the argument for treating orbital cellulitis by radical operation on the accessory nasal sinus, by the external route. Apart from haemorrhage, the result of inflammatory engorgement, the steps of the operation can be followed deliberately and the source of the infection traced and eliminated. Briefly, the operation consists in perforating the nasal process of the maxilla and opening up the frontal sinus and the lateral mass of the ethmoid. Infected cells are opened and removed as far as possible, and the os planum is cut through to drain the orbital cavity. The anterior ethmoidal artery is almost constantly severed. Bleeding yields readily to moderate gauze pressure, but the site of the haemorrhage demonstrates very well, in the living, its close relation to the orbit. It is important to make as complete a clearance as possible, as infection often starts far back, but the patients are often so gravely ill that complete removal of the lateral mass is not always possible, and one has to be content with ample drainage.

Enlargement of the Blind Spot.

The second disorder to be discussed is a more purely ocular one. It has a fairly high incidence, but its relation to primary nasal infection is little appreciated. It is first manifested purely as a disturbance of vision, most often unilateral, and there is found a blurring and loss of visual acuity in that part of the retina immediately surrounding the optic disc. A most important sign and a fairly constant one, is enlargement of the blind spot for white and colours, as determined by perimetric examination. This, in all probability, signifies an inflammatory lesion of the retinal fibres in the affected area. The enlargement of the blind spot is known as Von der Hoeve's sign, and is described by him as an important symptom of posterior accessory sinus disease, and where no other cause for the eye changes can be found he considers it an indication for operation on the sinuses. Another observer found in 102 patients suffering from ethmoidal and sphenoidal sinus disease enlargement of the blind spot in no less than 31 per cent. of cases. In my experience, however, the antrum is as often at fault. A case that came under my care recently illustrates very well how completely unsuspected is this underlying nasal infection.

R. H. was referred to me by my colleague Mr. S. T. Parker, to whom I am also indebted for the notes on enlargement of the blind spot. The patient complained that for three weeks she had had blurring of vision in the right eye. Mr. Parker found enlargement of the blind spot, and sent her to me for examination of the nasal sinuses. There was nothing in her history suggestive of sinus disease, and examination of the nose only revealed a marked deflection of the septum to the left. There was no trace of pus in the nose or nasopharynx. A skiagram, however, revealed a marked opacity in the right antrum, and exploratory puncture under local anaesthesia found thick mucopus. Under a general anaesthetic I drained the antrum into the inferior meatus by the intranasal method. A considerable amount of pus was evacuated at the time, and some discharge persisted for several days after the operation. No organisms could be grown from the pus on ordinary media.

In two weeks there was marked improvement in vision in the affected eye, and a month later it was almost completely restored, only a slight deficiency being recorded by the perimeter.

While the connexion between ocular disease and sinus disease is certain, the path along which the infection travels is not so clear. It is presumably a direct one, both parts being almost always affected on the same side. It is probable that the ocular element is not in fact an infection, but the result rather of compression by inflammatory exudate at the back of the orbit. The latter assumption is supported by the rapid improvement which follows adequate treatment of the primary nasal trouble. In a number of cases no direct evidence of sinus disease can be found, but frequently there is a history which indicates some such trouble perhaps months before. One girl had pain and swelling in one side of the face with profuse discharge of pus from one side of the nose, following a bathe in a well-patronized swimming bath. I have no doubt she had an acute antral infection, yet her visual defect only became apparent some six months later. I have found a similar coincidence in other cases, and it appears that sometimes, at any rate, the progress of the trouble from the nose to the optic nerve elements is so slow that the original focus may have cleared up before the advent of the eye symptoms.

Phlyctenular Conjunctivitis and Blepharitis.

The third and last group to which I am going to refer includes cases, chiefly in children, of phlyctenular conjunctivitis and blepharitis. Although they almost always come for treatment via the ophthalmic department, children frequently attend the throat clinic for recurrent sore throat, and complain that each attack is associated with inflammation and soreness of the eyelids. These cases are often intractable to all forms of local treatment, as they are secondary to a remote focus usually in the tonsils. The results of tonsillectomy in this disorder are so uniformly good that the operation should be undertaken even in the absence of any apparent tonsillar disease. The tonsils should be removed by formal dissection.

One or two points of interest come out in the examination of the tonsils in these children. They are quite frequently very small and look innocent, even on section after enucleation. Further, there is most often a complete absence of palpable glands in the neck, and this is the more striking as the vast majority of children presenting themselves at the throat clinic have some cervical adenitis.

In the absence of any demonstrable anatomical connexion it must be assumed that the tonsils in these cases contain some toxin which circulates in the blood stream and lowers the vitality of the conjunctivae, which are already infected from purely local sources. Any effective resistance is thus hampered, and the condition becomes chronic.

I have not attempted in these notes to describe in any detail the symptoms and treatment of the diseases enumerated. My purpose has been solely to draw attention to relationships which must be fully appreciated in order to provide the scientific treatment so essential for cure.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE TREATMENT OF TETANUS.

While the prophylactic dose of antitetanic serum has tended to make the incidence of tetanus an increasing rarity, it may still happen to anyone to have to treat a case, and the problem of the correct treatment suitable to various cases must be approached through the accumulated experience of the few instances available. The treatment of the wound by thorough disinfection is the first consideration, and, if suitable, complete excision is indicated. Where excision is impossible then continuous irrigation with oxygen-producing agents may prevent the production of any additional toxins.

For the control of the spasms the injection into the spinal canal of hypertonic salt solution, after removal of cerebro-spinal fluid, will give approximately twenty-four hours' remission of symptoms. Under chloroform anaesthesia about 10 c.cm. of cerebro-spinal fluid is removed slowly, and 2 c.cm. of 25 per cent. magnesium sulphate solution in distilled water is injected. To overcome the effect of those toxins already exerting their harmful influence, massive doses of antitoxin should be given. This may be administered by subcutaneous, intravenous, or intrathecal injection, preferably by all three methods. I have used with success in an adult case injections of 10,000 units into the spinal canal, after removing a similar amount of fluid, as an initial dose, and injections by intravenous and subcutaneous route of the same dose as well, making 30,000 units in all. These measures may be repeated more than once, at daily intervals, if there is an increase, or so long as there is no abatement of the severity of the symptoms of spasms and trismus, etc.

Experience gained with adults during the war does not afford any guidance in dealing with tetanus in children, and as there are so few cases in which the treatment and dosage are on record, I am venturing to record the result I obtained in a recent case, showing the dose used and the unusual reaction observed afterwards.

A medium-sized boy, aged 12, had a lacerated wound of the left leg, 5 inches long, transverse to the long axis, as a result of falling from a tree on April 5th. The wound was disinfected and treated with boric fomentations, but became septic. On April 15th he was seen by a colleague, who observed a well-marked condition of trismus, with stiffness of the back. I saw the patient with him later in the day, and removed the boy to hospital.

After admission, under general chloroform anaesthesia, the wound was thoroughly inspected and cleaned, and it was found to extend throughout its length 3 inches from the skin edges into the subcutaneous space. Carrel-Dakin irrigation was therefore arranged from the inside limits of the infected area, and the wound was dressed with gauze soaked in hydrogen peroxide solution. The healing of this presented no unusual feature. After dealing with the wound, lumbar puncture was performed and 10 c.cm. of fluid was drained, and an injection of 8,000 units of antitetanic serum given; 6,000 units were given by subcutaneous injection.

On April 16th the general condition of the boy was satisfactory; no spasm had occurred, but the trismus and the pain and stiffness of the back were unchanged. An intravenous injection of 7,000 units of antitetanic serum was given, and an injection of 1/6 grain of omnopon was sufficient to allay the pain in the back. On

April 17th another intravenous injection of 7,000 units was given. The trismus was unchanged, but the stiffness and pain in the back were less marked and were easily controlled by omnopon. On April 18th the trismus condition was noted to be relaxing, and gradually became less day by day. On April 26th the patient suddenly commenced to register a temperature of 103° F., but complained of no symptoms or malaise, and no signs of any trouble could be found in any of the organs. This high temperature remained unchanged day and night until May 1st, when it fell by lysis. Throughout this period the patient felt perfectly well. He was discharged from hospital on May 10th.

I admit that this case must be regarded as an exceptionally mild one, but the following are points of interest:

1. Thorough irrigation with the Carrel-Dakin method can prevent the development of any further tetanus toxin when excision of the wound is impossible.
2. Massive doses of antitetanic serum should be administered as soon as possible; in the case of a boy those given proved efficacious and safe.
3. The reaction from antitetanic serum may take the somewhat unusual form recorded.
4. The injection of hypertonic salt solution was not required in this case, but I have used it in the severer type of case with most satisfactory results in relieving spasms, and I can strongly recommend it.

Cirencester Memorial Hospital. J. H. Grove-White, M.D.

A PARASITIC DERMOID CYST.

The following clinical details of a case of dermoid cyst with no obvious connexion with an ovary appears to be worth recording, in view of the migration which would seem to have occurred.

A multipara, aged 44, was sent to me by Dr. Speight of Burscough. She had backache and a "bearing-down" pain, neither of which was relieved by rest. The symptoms dated roughly from her third confinement. She had had five labours, all of which had been normal and followed by normal puerperia. Examination revealed a slight degree of vaginal prolapse, and the presence of an irregular hard mass behind the uterus. This mass was considered to be either a calcified fibroid or a lithopaedion.

At operation the omentum was found to be lightly adherent to the abdominal wall; the mass was situated in the pouch of Douglas, where it was embedded in adhesions. These were easily separated, and the mass was shelled out; it was completely within the peritoneum. The left appendage was normal, but the right was represented by a small tubo-ovarian cyst. The specimen, when removed, was completely enveloped in a calcareous wall, and was 7½ cm. long. On opening a window in it sebaceous material and hair were seen.

The point of interest about the cyst is its origin. Since it lay within the pouch of Douglas, it could not be an extraperitoneal dermoid, and the fact that it was buried in adhesions and had no pedicle suggests that this was not its original site. The calcareous change in its wall supports this view, for it implies a deficient blood supply.

The common site for a dermoid tumour anywhere in this neighbourhood is certainly the ovary. Assuming this, three possible modes of origin may be considered: (1) From a supernumerary ovary. As there was no sign of any "ligament" running from the tumour to the uterus or inguinal canal (no remnant of a gubernaculum ovarii) this origin can be dismissed. (2) From accessory ovarian tissue. Had it arisen thus it would, in all probability, have been extraperitoneal. (3) Separation from the ovary in which it grew, probably by torsion of its pedicle. This appears to be the most likely explanation; the condition of the right appendage and the presence of omental adhesions are in favour of such a suggestion. Unfortunately, no sections were cut from the right appendage to determine whether any ovarian tissue was present.

Complete separation of ovarian dermoids from their point of origin appears to be of infrequent occurrence. It is mentioned by Senn[1] and older authors, but it has only been possible to trace a few specific cases in the literature. Spencer Wells[2] records a case, and refers to one reported by Atlee. Doran[3] notes a case described by Knowsley Thornton; in this patient one ovary was cystic and the other was represented by a short tag of fatty and partly calcareous tissue. Hermann[4] had a case in which, at the time of operation, both ovaries were intact; he considered that this tumour arose in an accessory ovary. This case is complicated by the fact that the tumour was in part pseudo-mucinous and in part dermoid. Reinprecht[5] reported a case, but does not give sufficient details of the appearance of the ovaries at the time of operation. Ernest Herman[6] appears to have had a case, and to have operated during labour, but the description leaves the reader somewhat in doubt. Miss Ivens[7] has reported a case in which the whole ovary was involved, and its previous existence represented only by a scar on the back of the broad ligament. Miles Phillips's case[8] was very similar to that of Miss Ivens. In Dartigue's case[9] the separation involved the whole appendage, and the tumour represented both tube and ovary.

It is noteworthy that where parity is mentioned the women were all multiparae, and that where the side is specified the right is the commoner. Pregnancy predisposes to torsion of the pedicle of ovarian cysts, and the normal obliquity of the pregnant uterus may cause it to have more effect on right-sided cysts.

Liverpool. Arthur A. Gemmell, M.D., F.R.C.S.Ed.

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GLANDULAR FEVER IN THE FALKLAND ISLANDS.

A short note on an epidemic of glandular fever that occurred in 1926 in a very isolated community may be of interest. The cases numbered 87—52 males and 35 females. The incidence in the sex and age groups is shown in the following table.

Age Group.	Male.	Female.	Total.	Percentage.
Under 5	5	2	7	8
5–15	9	8	17	20
15–25	22	11	33	38
25–45	11	10	21	24
45–65 ...	4	4	8	9
65 and over ..	1	—	1	1

The youngest person afflicted was a boy aged 2 years; the oldest a man of 70. The disease was characterized by the sudden onset of slight soreness and redness of the throat, difficulty in swallowing, and pain in the neck, accentuated by movement. Fever was present in all cases, the temperature ranging between 100 and 103° F. Painful bilateral adenitis of the neck appeared between the second and fourth days of the disease. The glands varied in size from that of a pea to a hen's egg, and were of a stony consistence. In eight cases the onset was very acute, with marked headache, nausea, vomiting, and prostration. In two cases the onset was marked by severe epistaxis. At an early stage of the disease five cases showed a nephritis of a mild type associated with pain in the lumber region. Recovery in all cases was uneventful. Four cases developed retropharyngeal abscess. One of these, a female aged 30, died owing to the sudden rupture of a large retropharyngeal abscess causing rapid asphyxia. In a boy, aged 8, the cervical adenitis went on to suppuration, and a large quantity of pus was evacuated on incising the affected gland. One patient only, a man of 29, showed a slight enlargement and tenderness of the spleen and liver. The average duration of the disease was about a month. Careful nursing and the administration of small doses of calomel was the method of treatment.

In isolated communities the lack of resistance to infectious disease and its incidence in age groups is of interest. Old and young alike have little immunity to the

so-called diseases of childhood. It has been my experience in a community where infectious diseases were previously unknown, or a mere legend, that the maturer people are as liable to infection as, and suffer more acutely than, the young. During this epidemic of glandular fever all the complications of the disease occurred in the third, fourth, and fifth age groups, with the single exception of the boy whose adenitis went on to suppuration.

Among several recent immigrants, men of the third age group from the South of England, none of whom gave a history of glandular fever, only two contracted the disease, although all without exception lived in precisely the same manner and in close association with the natives of the island, among whom the case incidence of the disease was very high.

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Reports of Societies.

SOME AMPUTATION PROBLEMS.

At the meeting of the Section of Orthopaedics of the Royal Society of Medicine, on November 4th, Mr. P. Jenner Verrall delivered the annual address from the chair on "Some amputation problems," after which he invited discussion. The discussion was a continuation of one held in the Section of Surgery in April last (*British Medical Journal*, April 12th, p. 693).

Mr. Jenner Verrall said that he proposed to deal in the main with the unusual, but he wanted first to state briefly what was the normal and ideal. Speaking of the lower limb, he said that a tilting-table prosthesis was to be avoided if possible, but it must be fitted for a stump of less than 5 inches measured from the great trochanter. An above-knee amputation should be at least 4 inches above the condyles, and preferably should leave a stump measuring 10 to 11 inches where the normal femur measured 19 inches, or 12 inches if the femur was longer. The ideal below-knee stump contained 7 inches of tibia. Flaps should be no longer than the diameter of the limb, and should contain no more muscle in their base than was needed as sheer tissue solely to ensure the blood supply. He expressed himself against alcohol injections into the nerves; they produced a perineural fibrosis which was bad in the long run. Haemastasis should be most complete, and there should be no hesitation in surrounding small portions of tissue with a circular ligature if there were small vessels which could not be picked up singly. Haemastasis being complete, he would advise that no drainage be employed. He would far sooner stitch up loosely, allowing space between stitches for oozing, than introduce a drainage tube, which, like other doors, could be passed through in both directions. Massage, where the stump was normal, was quite useless, and might be harmful as militating against rest and settling down. Re-amputations were more difficult than primary ones, owing, among other causes, to the pre-existing scar, also the congested and varicose condition of the parts. Of the three varieties of emergency amputation, guillotine, through-joint, and amputation with flaps left open, the last was rarely used, and he thought the first superior to the second. Undue retraction of the skin would be prevented by some form of extension, such as the admirable method described by Elmslie. If pus pockets were found in a case for re-amputation, although they might be quite sterile on bacteriological examination, it was not fair to take the risk, and re-amputation must be put off. One would always tend to err on the side of waiting too long, and it often happened that while waiting the amputation would heal and even the nerves which had been cut short at operation give no more trouble.

Mr. Verrall then proceeded to give his opinions on certain amputations. Beginning with the foot, he pointed out that one disadvantage of the Lisfranc operation was the loss of one arch of the foot; and with regard to the Chopart amputation, he gave certain reasons why it was a bad one in the adult. Coming next to the Syme, by which he meant the modern Syme with the elliptical incision, he would not deny the existence of many successful Symes, in both civil and military cases, but the Syme was far less certain of remaining perfectly satisfactory than was the mid-tibial amputation. It had been said that an unsatisfactory Syme was a Syme badly done, but he had seen many Symes go wrong which had been performed by surgeons whose skill was beyond question. It was generally admitted that a mid-tibial amputation should leave a 7-inch tibia and a slightly shorter fibula. In a muscular and well-nourished leg an anterior skin flap was good, but in atrophic legs, especially with old sciatic injuries, where the circulation was none too good, he preferred to make a postero-external flap, calculating the length so that after shrinkage the scar would lie transversely half an inch below the tibial level. The Stokes-Gritti amputation was still spoken of in literature as a good operation, but in his experience it was not, and Mr. Muirhead Little had very kindly allowed them to borrow from the Royal College of Surgeons an admirable portfolio of *x*-ray and other pictures from his collection, which, to the speaker's mind, showed every sort of misbehaviour of which the Stokes-Gritti was capable. Dealing with unsatisfactory stumps in general, Mr. Verrall declared that much trouble was caused by too early limb-fitting. In a perfectly clean amputation, where sepsis had never been present or had been prevented from developing, the fitting with the prosthesis might take place within three months; but in war cases and secondary amputations in civil life six months should be allowed to elapse. Below-knee pylons were very unsatisfactory, and above-knee pylons, though surgically bad, were economically good. But the pylon must be fitted by a limb-maker under surgical supervision, reproducing the pressure points which would remain in the permanent prosthesis to be fitted later. Coming to the problem of stiffness of the joints, he said that, in the case of the hip, ankylosis in good or bad position was almost an absolute bar to the fitting of a satisfactory limb. The alternatives were either to re-amputate to give the best stump for the tilting-table or to attempt the formation of a mobile joint. As no weight had to be borne on the joint, it would appear that a simple excision of the hip would suffice, but this was not satisfactory in his experience because the patient had no control over the prosthesis; it was the fulcrum that was lacking. Arthroplasty of the hip in amputation cases was excellent—more promising in stumps than in complete limbs. A hopelessly flexed hip should be left flexed, and the stump shortened to allow of the fitting of a tilting-table. The longest stump that could be so fitted was one of 6 inches; this was very unsightly. With regard to the treatment of neuromata, this was less and less important. Indiscriminate removal of neuromata was to be deprecated. Operations for a painful neuroma should be local. Circulatory defects in stumps were commonly due to excessive length or excessive volume of soft tissues. They might also be due to deep-seated circulatory defects. In certain stumps there was a vascular upset, nervous in origin, and exceedingly difficult to cure. He was more and more convinced that successive re-amputations which one saw in so many of these cases were harmful, and he refused to do them. Time and occupation were the only cure. The phantom limb was a simple problem; operations were to be avoided, and if the phantom were considered as definitely due to a neuritis, syphilitic or alcoholic or other, it was important to alter the line of treatment and to defer limb-fitting for a long period while the case was treated. Mr. Muirhead Little had mentioned the existence of pain felt in the stump during defaecation and micturition. This was not uncommon, and the reverse was often found—pain in the rectum or bladder when the limb was worn. This was due to unstable nervous reflex. Time again was the only cure, though in some cases pain was due to imperfect limb-fitting. Since the war there had been two admirable works on the operative side published in this country—namely, Elmslie on "Amputations" in Carson's *Modern Operative Surgery*, and Muirhead Little's *Artificial Limbs and Amputation Stumps*. The developments up to this date were an alteration in opinion as to the length of the thigh stump, the value of the Syme and of the Stokes-Gritti, the question of drainage in amputations, of treatment of the nerves, a consideration of the choice in the case of mid-tibial

amputation between an anterior and a posterior flap based on the trophic condition of the leg, and, finally, the admission of the operation of arthroplasty as a reasonable and eminently successful proceeding for the treatment of stiff joints in amputation stumps.

Mr. E. MUIRHEAD LITTLE said that it was a matter of congratulation to him to find that the decisions generally agreed upon at Roehampton at the end of the war on various points connected with amputations had nearly all been upheld. He found himself in agreement with Mr. Verrall on almost every point. As to the Syme amputation, he was still rather unrepentant, but it was of no use gainsaying positive facts. Mr. Verrall and others who had been practising since the speaker left Roehampton had found positive difficulties with the Syme. There were many Symes which were excellent; a good Syme was excellent, a bad Syme was worth nothing. In this connexion he reminded the section of Martin Huggins's book, *Amputation Stumps: Their Care and After-Treatment*, in which he had laid down an excellent way of treating the flaps of the Syme after operation or dressing. With regard to the Stokes-Gritti amputation for the knee, the evidence which he had brought up for exhibition to the meeting showed how bad the results could be. In a case which it was intended should be fitted with a tilting-table, he quite agreed that the best thing was an amputation through or just below the lesser trochanter, giving the patient something more than the bare pelvis on which to sit. With regard to stiff joints, he quite agreed with Mr. Verrall, as also in his observations about the uselessness of the limb when the fulcrum had been excised away.

Mr. R. C. ELMSLIE said that he was still unrepentant with regard to the Syme. He believed with Mr. Little that a really good Syme was a good amputation, though he appreciated that the limb-fitting was a difficult matter. One must not condemn any amputation too loosely. There was one amputation which he supposed most of those present would condemn—namely, amputation through the knee-joint—yet he must plead guilty to having done it on at least three occasions in recent cases. In each of these cases he was amputating over a congenital deformity in which the tibia was missing, and the children had been accustomed to get about on the flexed knee, so that they had an absolutely perfect end-bearing on the condyles of the femur. Although one might condemn an amputation generally, one must not wipe it out as a thing never to be done.

Mr. W. R. BRISTOW said that there were plenty of Symes which remained good for a year or two. Only this week at St. Thomas's he had had to deal with the case of a woman on whom seven years ago a double Syme was done. Her stumps remained good for five years, but between the fifth and seventh years the end of one stump became rather loose and began to give trouble. The procedure was followed which Huggins practised in 1918, and re-amputation was done straight away. With regard to the treatment of nerve ends, it was the small nerves which gave the trouble—the internal saphenous in the thigh and the internal cutaneous in the arm. It was often expedient to shorten these nerves, crush them, and perhaps put a ligature on them. With regard to arthroplasty, he recalled that it was at Shepherd's Bush that he did the first arthroplasty of the hip-joint on amputation stumps. He remembered one case with double ankylosis of the hip, and two short thigh stumps. Sir Robert Jones agreed that an attempt at arthroplasty was the only expedient. His experience agreed with Mr. Verrall's that the arthroplasty where some fulcrum was retained was very useful in the limbs and particularly in the hip.

Mr. ROCYN JONES recalled that when he had the honour of assisting Mr. Muirhead Little it was the invariable custom to inject the nerves with alcohol. He thought this was valuable in emergency amputations where a primary amputation had to be done through possibly a very bad fracture, and later it might be necessary to do a secondary amputation. It certainly did diminish the shock of the operation very considerably. Particularly in a high amputation through the thigh, an injection into the sciatic nerve was of some value.

Mr. S. L. HIGGS agreed with Mr. Verrall's point about refraining from putting in a drainage tube except in very rare instances.

Mr. VERRALL, in reply, asked whether orthopaedists were to teach that the improved Syme was a good thing and that the surgeons who performed it could hold out reasonable prospects to their patients that it would be a permanent amputation. He had seen a certain number of good Symes, but one had to legislate for the majority, and he felt that the chances were against getting a permanent satisfactory condition with the Syme. As to crushing of the nerves, that was an expedient he believed in, but pulling down and shortening were procedures with which he could not agree; he was sure that the effect was to produce perineural fibrosis.

AIMS AND LIMITATIONS OF SURGERY.

IN the Section of Surgery of the Royal Society of Medicine, on November 5th, Mr. C. H. FAGGE delivered an annual address from the chair which was probably the shortest on record. Its delivery occupied only a quarter of an hour, and at the close Mr. Fagge invited discussion.

Mr. Fagge began by saying that the philosophic surgeon would admit that his ideal—the restoration to the normal—was never accomplished. Much of the surgeon's time and energy was taken up in attempts to prolong life in patients suffering from terminal states, for whom his best endeavours could do no more than leave them in a condition far short of normal. In truth, far too much of modern surgery was mutilation. Excluding the correction of some injuries, such as fractures, and cosmetic operations for congenital deformities, such as cleft palate and hare-lip, there was little in the surgical technique which did not replace one evil by another, admittedly of less and usually of unimportant degree. The fascinating field of surgery which endeavoured to combat the ravages of age by transplantation of an organ or part of it from an ape closely allied to man, or to replace a damaged or diseased organ by a similar organ taken from another human, or to fill a deficiency such as an absent finger by grafting another in its place, was still in its infancy. It was clear that much that had been exploited in this direction could not bear the scrutiny of judgement by results. Such graftings and transplantations could only be successful when the technique of connecting the blood vessels of the transplanted viscus to those of the recipient had been improved to a degree not yet possible, so that immediate restoration of the necessary nutritive fluids could be established with a reasonable degree of certainty. This restoration of circulation applied not only to blood vessels but also to the lymphatics.

Passing to the physical limitations by which the surgeon's work was hemmed in, Mr. Fagge confined himself to those which resulted from the nature of bodily tissues and from the healing of the operation wound. Lord Moynihan had remarked that surgery as a craft had reached finality. That idea was not new; in an American journal there recently appeared a quotation to the same effect from Erichsen, made at a time when Listerism had become firmly established. But if the half-truth were admitted, so must the reservation that even with the very best technique the finest and most accurate primary union resulted in the formation of a scar. Modern aseptic technique had undoubtedly modified the amount of scar formed in any tissue operated upon by limiting the leucocytic infiltration, but it was generally believed that proliferation of the fixed connective tissue cells was the ultimate factor in the causation of fibrous tissue, and, so far as he knew, there were no means to hand by which this might be controlled. What happened to any one of the higher connective tissues when it was subjected to an abnormal strain? When applied to the soft parts, a strain, in his judgement, usually resulted in the suture material, of whatever nature or strength, cutting through, with the giving way of the structure which it was desired to hold down, or in the formation of a scar by degeneration of the tissue held down. This limitation appeared to apply to

many of the operations described under the name of "pexies"; a particular example which illustrated his point was that of orchidopexy. The consideration of such behaviour of soft parts under strain brought him to another type of technique—namely, operations for incisional or ventral hernia. Here an area of scar had been produced by infection, and the fibrous tissue over this area offered a feeble resistance to normal abdominal tension. The normal resilient elastic abdominal wall had been replaced by an inelastic scar. This was spoken of as stretching, but in fact it gave way and a gap resulted. The object was to replace the scar by normal resilient muscular layers. Many operations had been devised and much ingenuity expended in attempting to close this defect, and yet the majority of such devices could only replace a thin weak scar by a thicker, more resistant one. Such was the method of action of metal filigrees or the introduction of living suture material, after the method of Gallie and Le Mesurier. In dealing with such cases, the speaker submitted, the surgeon should concentrate attention, not on the gap, but on the tissue which filled it, beginning with a free excision of all abnormal fibrous tissue scar. The surgeon's heart must be hardened and his courage steeled, for a most alarming gap would be left. When this had been done, normal aponeurotic and muscular layers could be approximated safely, and it was all-important to spend time in accurately defining the layers of the abdominal wall and suturing them one by one. He had not so far met any incisional or ventral hernia which he could not close in this way with ordinary catgut sutures, and an inquiry made by his former registrar of patients dealt with in this way had revealed no recurrence; all the patients were following their normal occupations without pain or the use of appliances. Finally, he spoke of keloid, an interesting eccentricity of scar formation. He remembered observing, thirty years ago, that after an operation for inguinal hernia in small children, if the incision encroached on to the hair-bearing pubes, that part of the scar might be keloid, and the rest a thin normal scar. In a patient operated on recently the cholecystectomy scar was keloid above and below, but normal in the middle. It was Mr. Fagge's belief that keloids, if excised freely, did not re-form.

Mr. C. Max Page thought that Mr. Fagge had been a little too pessimistic in describing almost all the performances of the surgeon as mutilation. After all, Mr. Fagge himself had referred to hernia, and that surely was very definitely an operation which restored to the normal, or nearly so. He thought bone-grafting might be placed in the same category, though it was quite true that not a great amount of it was done. He confessed that his own practice in the treatment of ventral hernia differed from that which Mr. Fagge had laid down. In the cases in which there was a large gap he had usually done a plastic operation, generally without the use of foreign material, such as filigree or living suture, and had attempted to get apposition of the main bulk of the abdominal wall by an overlap such as was practised in the Mayo operation for umbilical hernia. He might be wrong, but he believed he could show quite as good results by that method, though he had had no registrar to collect them for him. With regard to keloid, he had always thought that if keloid were excised, another keloid formed. He regretted that Mr. Fagge had not touched on infective processes.

Mr. V. Zachary Cope said that it was always interesting and encouraging to hear the philosophy of a surgeon. Limitations of surgery might be dealt with from several points of view—for example, the limitations to which the individual surgeon was kept by the multiplication of specialties. There was a tendency for the individual surgeon to become limited to one small sphere. In surgery itself there could be no limitation. If it was to live it must advance. When Erichsen said that surgery had reached finality, the kidney, the brain, the spinal cord, and most of the internal viscera had not been operated on, but now it could be said that practically every viscus, from the pituitary body to the remote depths of the spinal cord, was dealt with by the surgeon. But he thought that surgery would advance by co-operation in a more intelligent manner with the physician. In surgery there might come about, if one liked to call it so, a retrogression, which was really an advance, in the sense that operation would be avoided in a greater number of cases, and more cases would go to the physician. He saw no reason, for example, why a medical cure should not be found for exophthalmic goitre, and in gastric ulcer and suchlike conditions there should be found some method of cure without operation. He would not call that a going back of surgery; it was an advance of the whole of medicine. In the case of scars, Mr. Fagge had said that it was impossible to have a cut without getting some scar. But it was well to remember that in the modern treatment with radium there was no scar in the usual sense of the term, or the scar was infinitesimal, and the tissue left was practically normal in appearance. It was possible that in the next few years, by the suitable application of radium or radiotherapy of various kinds, a disappearance of scars might be obtained and a reappearance of normal tissue. Many keloids became softer under *x*-ray treatment.

Mr. A. J. Walton said that the surgeon must feel more and more, as he looked back upon his results, that the aims and objects in view were to abolish surgery entirely. Practically everything the surgeon did was, of course, a mutilating operation. But, fortunately, every individual was born with a pretty big "banking account," and was able to go on for a long time until the balance was exhausted. He had always laid it down that in surgery as small an amount of normal tissue as possible should be removed. He agreed with Mr. Cope that surgical treatment of exophthalmic goitre was absolutely wrong, but unfortunately to-day it was the only method of certain cure. In the same way with the surgery of the stomach, the more modern Continental method of removing seven-eighths of the stomach for an ulcer perhaps only half an inch in diameter was certainly wrong. In his own private practice he found himself doing more and more medicine and less and less surgery. Perhaps the most ideal operations for the restoration of normal function and anatomy were those for the removal of benign tumours, and next to these came operations for restoration after accidental lesions. Fractures had been mentioned, and there one did restore very nearly to the normal with the minimum of scar tissue. With regard to infective processes, in no field did the surgeon feel so absolutely hopeless. One factor he could not control was the presence of sepsis. If an appendix, for example, could be dealt with before infection had spread, the focus could be removed, and everything was plain sailing. But once the condition went beyond that, and the infection spread, there was little more that the surgeon could do. He agreed with Mr. Fagge as to the treatment of ventral hernia. His own experience was that with careful dissections and working out all the layers one by one, there were very few hernias where one could not restore completely by sewing up the separate layers. There was one exception to this—namely, where a hernia had arisen through paralysis of muscle. Where there was a destruction of the lower section of the rectus muscle, or wide paralysis of the oblique muscle, it was, of course, almost impossible to restore.

Mr. Eric Lloyd asked whether the president's philosophy extended to offering any explanation of the curious variations which most of them had observed in patients suffering from congenital abnormalities of various kinds. In particular, he was thinking of the children one sometimes saw who had just escaped a hare-lip. All surgeons had seen such patients with scars which nature had produced, and which they attempted in vain to emulate. Why was it that nature could produce such a superior scar to anything their best efforts could accomplish? Indeed, that point might be carried further, for every individual face was made up of most marvellously sutured seams. He had been struck by the occasional occurrence of keloid at the lower end of an inguinal incision. His impression was that this occurred more frequently in the lower end of a hernial scar than in the upper. With regard to treatment of keloid, he believed the proper method was not to apply *x* rays or radium immediately, but to excise the keloid and then to apply the rays.

Mr. Julian Taylor said that anyone who had attempted to operate on a strangulated hernia through a filigree

would hesitate before putting another filigree in. He joined issue with Mr. Walton on the question of hernia due to nerve injury. It was extremely rare for hernia of the abdomen to be due to nerve injury, and the average case which presented a paralysis of the muscle was no exception to the rule laid down by the president.

Mr. Hugh Lett criticized the pessimistic outlook of the president. He did not consider that, after all, surgery was in such a very bad way. It was true that the operations might be regarded as mutilating, but what about the disease for which they were done? If one removed a gall-bladder which had given the patient pain and discomfort, and the patient was restored to a state of normal health, even though he had lost the gall-bladder—a loss of which he was quite unconscious—to what extent was he worse off?

Mr. Fagge, in reply, said that he had not felt competent to speak about the treatment of acute infections, nor did this part of the subject come strictly under the text which he had taken. In reply to Mr. Walton, he (Mr. Fagge) had, perhaps fortunately, never had a hernia which had arisen through paralysis of muscle. With regard to keloid formation, it used to be said that keloid indicated tuberculosis, but it had been his experience that keloid varied greatly with the patients, some patients producing it very easily indeed and others much less easily.

CARDIAC PAIN.

At a meeting of the Brighton and Sussex Medico-Chirurgical Society, on November 6th, with the president, Mr. H. Nethersole Fletcher, in the chair, Dr. Donald Hall read a paper on cardiac pain.

Dr. Hall divided his subject into two groups, according to the pain being non-coronary or coronary in origin. The first group comprised a miscellaneous selection, the patients in most cases not having cardiac disease. It included dyspeptic pain referred to the heart and not to the stomach; the pain met with in "D.A.H.," hyperthyroidism, and other types of functional tachycardia; pain occurring in the cardiac region during the course of, and in convalescence after, the acute fevers; and two special forms of heart disease in which pain might be a prominent feature—namely, acute pericarditis and mitral stenosis. In this group the location of the pain was mammary or submammary, and not retrosternal. It was frequently accompanied by local tenderness, might be present throughout the day and yet the patient be carrying on his or her ordinary vocation, and radiation, if present, involved the entire upper limb, and not merely the ulnar border. Apart from tachycardia, with the exception of pericarditis and mitral stenosis, clinical examination of the heart afforded negative results, as did radiography and electrocardiography. The second group comprised coronary thrombosis and angina pectoris. Although there was a clear-cut difference between the cases of acute coronary infarction and the more chronic cases of the effort syndrome, intermediate types were met with both clinically and in the curves of the electrocardiogram. Apart from the rare incidence of coronary embolism, these two types were different expressions of the same pathological process; in the one instance abrupt occlusion of an already diseased artery followed by the sudden ischaemic necrosis of a limited area of myocardium, in the other a slow, diffuse myocardial degeneration produced by chronic progressive atheroma of the coronary arteries. Advanced myocardial change might be present without any change in the heart sounds, borders, or rhythm, or any alteration in the blood pressure; even if the electrocardiogram was also unchanged, the clinical symptoms of the effort syndrome were so clear that on them alone the diagnosis must be made and maintained. Lantern slides were shown of the "plateau-curve" and subsequent changes met with in coronary thrombosis, and of various abnormalities of the electrocardiogram found in cases of angina pectoris. Dr. Hall said he had seen typical RS–T deviation shortly after acute pulmonary oedema and cardiac asthma; he did not regard this abnormality *per se* as pathognomonic of coronary infarction. Serial electrocardiograms were required to make the diagnosis complete, and these were of great value in assessing the recovery of the myocardium. The etiological significance of defective blood supply in the effort syndrome was made even more clear by the interesting type of angina pectoris met with in Addisonian anaemia where, although the vessels were intact, anoxaemia and degeneration of the heart muscle were brought about by faulty quality of the nutrient fluid.

SPEECH DISORDERS OF CHILDHOOD.

At a meeting of the Liverpool Medical Institution, on October 23rd, Dr. Barton Hall read a paper on the speech disorders of childhood, with special reference to congenital auditory imperception.

Dr. Barton Hall said that the importance of the subject arose from the fact that speech disorder was of common occurrence, and that it was often the predominant feature of conditions which were, in their nature, extraordinarily diverse. The disorder might be localized to the motor or the sensory sides of the speech mechanism, or to the intellectual processes concerned in speech. From the motor aspect the most obvious difficulties arose in cases where there was organic defect in the mechanism of articulation. Probably the most common speech disorder to be encountered was that of inco-ordinate speech, stammering or stuttering. Although stammering was often classed among the so-called "functional" disorders of the nervous system, it had always appeared to the speaker to be some inherent disability of the patient's higher speech mechanism. Lalling and lisping constituted two further disorders of speech. The latter was of fairly common occurrence, but lalling was rare in children who had passed babyhood, and might be of so severe a degree as to amount to idioglossia. Although the difficulty in idioglossia was that of the correct formation of sounds, the defect was really one of audition. Dr. Barton Hall then considered the condition known as congenital auditory imperception. The literature on this subject was reviewed, particular attention being paid to the subject of pathogenesis, and the lecturer then described three of his own clinical cases in detail; the first, a case of idioglossia in a girl, aged 5, in which there was a definite familial factor; the second, a case of auditory imperception in a girl, aged 7, in which there was a definite familial factor, and the possibility of a traumatic factor associated with an attack of whooping-cough; the third, a typical case of congenital auditory imperception in a boy, aged 8½, who had been diagnosed as mentally defective, and in whom there was a possibility of a familial factor, and also the chance of some birth trauma having occurred. The importance of assessing the intelligence in such cases was stressed, and emphasis was laid upon the assistance that such measures gave to diagnosis, prognosis, and treatment.

Mrs. Barton Hall described the methods employed in assessing the intelligence of these three children, pointing out the significance of using "performance material" in conditions such as auditory imperception, where verbal methods of testing were impossible. Examination showed that the intelligence quotients in the three cases were 104, 114, and 94 respectively, all three children proving to be of average, or above average, intelligence.

Dr. Norman B. Capon referred to the many difficulties of examining the sensory reactions in very young children. He pointed out that in certain circumstances it was possible to obtain help from the application of conditioned reflexes. In regard to the etiology of congenital auditory imperception, prematurity and intracranial birth injury might be concerned, but the evidence was still indefinite.

Mr. John T. Morrison read a paper entitled "A simple method of intravenous local anaesthesia." The technique employed involved the use of one tourniquet and one needle puncture only. He then commented on the actual type of anaesthesia produced, and offered some explanation of the possible mode of action of the drug novocain. A brief summary was given of experimental work dealing with the "fixation" of novocain in the tissues and its application to surgery. In the following discussion, it was suggested that since the injection was made in a portion of the

limb remote from the tourniquet, and the circulation was arrested, the anaesthesia might be due to pressure on the nerves by the tourniquet, since it was present in the region of this constriction.

FIBROID DISEASE OF THE UTERUS.

At a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland, on October 24th, with the president, Dr. A. H. Davidson, in the chair, Dr. Ninian Falkiner showed a large myoma which had been removed from a patient, aged 48. The clinical history was as follows.

The patient's menstrual periods had been regular, but rather profuse. Her appetite was good, and the bowels regular. The abdomen was found to be filled by an apparently solid tumour, which was shown by bimanual examination to extend into the pelvis. A probable diagnosis of malignant ovarian tumour was made and the abdomen was opened. It was then found that the uterus was attached to the side of the tumour at the level of the umbilicus. The growth was eventually removed with considerable difficulty, owing to its being impacted in the pelvis.

The shape of the tumour had been apparently influenced by its growth following the line of least resistance, and extending downwards into the pelvis, as well as upwards in the abdomen. Microscopical examination showed that its structure was that of a simple fibromyoma, with hyaline and mucinous degeneration; no evidence of malignancy was obtained. The weight of the tumour was 15 lb. 12 oz. After the removal a very large raw area was left, and peritonization of the pelvis could only be performed very roughly; the abdomen was closed, and the patient had a normal convalescence.

The President commented on the way this growth had spread; it was the largest myoma he had ever seen, and, in view of its size, it seemed rather extraordinary that there had been no constipation. In removing large myomata the ureter always involved some difficulty, and in the present case the successful excision was a matter for congratulation. Dr. R. M. Corbet mentioned two cases of myoma which he had recently seen; in each the growth had weighed about 10 or 12 lb., and neither had given rise to any symptoms.

Dr. Bethel Solomons remarked that isolation of the ureters was an essential step in the procedure of removing such large fibroid tumours. He then exhibited two fibroid uteri removed from women during the active child-bearing period. They showed hyaline degeneration, with some evidence of active growth. In the first patient, who was 47 years old, had been married for twenty-three years, and was a 17-para, the only symptoms had been backache and palpitation. The second patient, who was 35 years old, had been married for four years, and had given birth to two children; she had had two miscarriages, the last having resulted three months previously.

The President thought that both these cases illustrated very well the fact that myomata caused miscarriage. Dr. Gibbon FitzGibbon said that when he had been preparing statistics of the incidence of fibroids, during his Mastership of the Rotunda Hospital, he had been surprised by the large number of cases of fibroids in women who had had children. The majority of these patients had been married; they were either women who came at the menopause, or were aged about 30, had had no children, and consulted a doctor because of sterility. He thought that the old idea that fibroids were associated with sterility or celibacy was not at all supported by statistics.

At a meeting of the Section of Laryngology of the Royal Society of Medicine, on November 6th, Professor J. Eastman Sheehan of New York gave a cinematograph demonstration in colours of plastic operations. Motion colour photographs of the following procedures were shown: (1) operation for relief of unilateral facial paralysis, under local anaesthesia, through use of sustaining strips of fascia lata; (2) severe cicatrix of upper lip and face (lupus) repaired by utilizing a free, full thickness skin graft; (3) migration tube pedicle graft from neck, for restoration of facial contour (cancer defect); (4) the procedure for excision of costal cartilage for use in repairs of the nose and face; (5) the use of the epidermic skin graft for extensive cicatricial contracture of hand. After this demonstration, Sir Harold Gillies and Mr. Lionel Colledge showed cases illustrating the end-results of similar surgical procedures.

Reviews.

A SYSTEM OF BACTERIOLOGY.

Volume I of *A System of Bacteriology*,[1] the fifth of the series to appear, opens with a chapter on the history of bacteriology. It is rather astonishing to find how ignorant many bacteriologists are of the history of their subject; perhaps in the case of a young and actively growing science like this, attention is apt to be focused entirely on the present and the possible developments that the future holds in store. Yet a knowledge of the past is not only of interest but of positive value: what more salutary lesson could there be for the young research worker than the reading of some of the publications of a man like Koch? Professor Bulloch, the author of this chapter, has a unique knowledge of his subject and knows how to impart it, and the chapter is enriched by a number of illustrations reproduced from some of the early bacteriological classics. Following this is a short account of the morphology of bacteria by R. St. J. Brooks, with a very brief note on the investigation of bacteria in the living state by J. E. Barnard. This latter is little more than an indication of the lines along which Barnard is approaching the question, and the possibilities of the methods are illustrated by the reproduction of some of his beautiful photomicrographs. Chapter III is devoted to a consideration of the physics of the bacterial cell by E. K. Rideal and Hamilton McCombie—a difficult subject, but one of great importance. The growth and reproduction of bacteria, the subject of the next chapter, is dealt with under the three headings of "Phases in growth"; "Cell division, colony formation, and spore formation"; and "Life-cycles." Perhaps in the first section, by A. Slator, more might have been said on the question of suspended animation, because of its bearing on the problem of conservation, which is of particular interest in the case of filterable viruses. A. D. Gardner contributes the second section, on cell division, colony formation, and spore formation, and it is very good, though it is somewhat surprising to find no mention of Fildes's recent work when the conditions affecting the germination of spores is under consideration.

Life-cycles in bacteria have had rather a vogue during the last few years, though the majority of bacteriologists adhere to the more orthodox view. H. C. Thornton, however, gives us some examples, such as *B. radicola*, where developmental cycles do seem to pertain, though he is commendably cautious in arguing from such individual findings to bacteria in general. Chapter V, on the theory of disinfection, by H. Chick, is a good account of the subject, wherein the lines along which further investigation is required are clearly indicated. This chapter has a section devoted to antiseptic dyes, by C. H. Browning, who has done so much in this field. The metabolism of bacteria, by A. Harden, which forms the subject of the next chapter, is most valuable, though it will probably prove rather difficult reading for many bacteriologists. Chapter VII, on bacterial respiration, by J. W. McLeod, suffers perhaps from being too condensed, but it is extremely good, and offers much food for thought. The short paper on the conception of oxidation-reduction potentials and its application to the problems of bacterial respirations is particularly good.

We always expect something good and eminently readable from Sir Frederick Andrewes, and in his chapter on nomenclature and classification this expectation is fully realized. He never fails to make his subject interesting, and to have done this with the subject in question—it is the most readable chapter in the book—is no mean achievement. The volume concludes with an account of variation by J. A. Arkwright, who has contributed so much to our knowledge of this question. It is a clear and well-balanced paper, and contains a beautiful plate illustrating smooth and rough colonies of certain organisms.

[1] *A System of Bacteriology in Relation to Medicine*. Medical Research Council. Vol. i. London: H.M. Stationery Office. 1930. (Sup. roy. 8vo, pp. 374. Single volumes £1 1s. net; set of nine volumes £8 8s. net.)

THE ENZYME REACTION.

A LARGE number of papers by Italian workers on the relation between immunity and protective enzymes have appeared in recent years. This work has now been summarized by SIVORI, REBAUDI, and MENNITI in a book on the enzyme reaction.[2] According to these authors, serums of immune animals contain enzymes, differing in character from those of the alimentary canal, which break down foreign proteins. The first products of hydrolysis are insoluble, later intermediate products toxic, and the end-products non-toxic. Theories of skin reactions, anaphylaxis, and the course of infective diseases based on this property are stated in outline.

In the first part of the book, containing only 128 pages, the authors deal also with endocrine disturbances and the etiology of, and immunity to, neoplasms, besides giving the results of certain experiments in detail. The result is neither a thorough discussion nor a brief outline of suggestive ideas, and is wholly unconvincing. In the second part the authors describe their enzyme reaction in detail. It differs from the Abderhalden reaction in that the antigens are liquid, being prepared by hydrolysis to the stage in which the biuret reaction for peptone is strong and the ninhydrin reaction weak; and that the mixture of antigen and serum is not dialysed, but the ninhydrin, used to test for products of digestion, is added directly to the mixture. The technique of the application of this reaction to tuberculous and syphilitic serums, and the results obtained by numerous workers are described. The results in tuberculosis appear to be valuable. Applications of the reaction to other diseases are mentioned also.

Although many authors are quoted in the first part of the book no references to them are given. There is no index.

DISEASES OF THE SKIN.

AMID the flood of textbooks of dermatology which have appeared within the last few years that by Dr. G. C. ANDREWS of New York, *Diseases of the Skin*,[3] stands out. It is certainly among the best. While it is of ample size adequately to deal with the subject, the author maintains the proper proportions between what it is important for all students and practitioners to know about the essentials of cutaneous medicine and those quaint and interesting rarities which appeal almost exclusively to the specialist, whose attitude towards them often resembles that of the collector of postage stamps towards unique specimens of the philatelic art. Dr. Andrews has brought his account of the subject thoroughly up to date, and in doing so has taken immense pains. There is no better evidence of this than the vast bibliography appended to each chapter, which shows how thoroughly he and his assistants, whose help he generously acknowledges in the preface, have searched the whole of dermatological literature for all that might be useful in this *magnum opus*.

This is the first general textbook in which any account has appeared of the dietetic treatment of lupus vulgaris, now undergoing so thorough a trial in Germany. Dr. Edgar Mayer, who furnished the author with notes on the subject taken during a personal visit to Germany, has, it is interesting to observe, also tried the diet (the chief features of which are low content of sodium chloride, protein, and carbohydrate, and an enhanced proportion of fats and vitamins) on thirty patients with advanced pulmonary tuberculosis who had proved refractory to all accepted methods of therapy. He states that good results were obtained in about half the cases. Dr. Mayer was very favourably impressed with the results obtained from the diet at Munich, Giessen, and also at Leysin. Dr. Andrews has long been interested in the physical methods of dermatological therapy, and among the most useful chapters is that on ultra-violet light. As might be expected, he is conservative in his estimation of the value of ultra-violet rays in general dermatology, and definitely states that they must be considered inferior to *x* rays in all-round utility. There is one field for their action, however, which deserves to be better known than it is, and that is in the treatment of pitted scars, such as are often left after severe acne. In these, blistering exposures to ultra-violet light often lead to marked improvement. Another topic recently much discussed by dermatologists is the thallium treatment of ringworm of the scalp, which the reader will find very judiciously dealt with in this volume. The author concludes that its greatest opportunity lies in the treatment of severe epidemics of tinea capitis when adequate *x*-ray treatment is not available, and also in combination with *x* rays for the treatment of adults for diseases of the skin requiring epilation. This is a field which has not as yet received much attention. Dr. Andrews has also used radium itself in the treatment of ringworm in very young and restless children, the applicators being fixed by strapping to the scalp.

A special word of commendation must be accorded to the illustrations, which are both numerous and excellent. In the volume of just over 1,000 pages there are nearly a thousand illustrations, for the most part excellently reproduced from clinical photographs, but there are also many diagrams explaining various points of technique, which will be found most useful. The whole volume is excellently got up, and, considering the amount of matter contained in it, remains moderate in size and easy to handle. We commend it with confidence both to general practitioners and to specialists.

PHYSIOLOGY FOR STUDENTS OF MEDICINE.

LITTLE need now be said in praise of the excellent treatise on *Physiology and Biochemistry in Modern Medicine*,[4] by Professor J. J. R. MACLEOD. It has reached its sixth edition in some ten years for the very good reason that it gives one of the best and most readable accounts of physiology, particularly of the metabolic phase of physiological activity, in any language. The present edition, except that it records advances that have taken place in the last three years, differs but little from its predecessor. But we adhere to the opinion expressed in our review of the fifth edition that it was a mistake to expand this excellent book so as to make it serve as a textbook of physiology for students of medicine. In the first place the expansion has not been in all respects sufficient for this purpose, some subjects—for example, reproduction—being omitted from Professor Macleod's survey. Secondly, while the book fulfils the needs of those who have already some knowledge of the fundamentals of physiology, it makes very difficult reading for the novice.

A perusal of the text recalls the issue raised by some editorial comment on Sir Arthur Keith's oration on evolution in modern medicine (May 17th, p. 913): "The medical student has much to learn and only a short time in which to learn it; and the practitioner of medicine deals in very practical affairs. Our pastors and masters must realize this position; for if, as we are told, physiology in the medical curriculum can now only be covered by three teachers where formerly one sufficed, it is certain that some selection in relation to utilitarian values will have to be made so far at least as the medical student is concerned." Teachers of physiology are not blind to the problem of relating their teaching to utilitarian values. Most of them, we believe, do not forget that physiology is, in the old Scottish phrase, the institutes of medicine, and in a very real sense an introduction to medicine. But what are the limits of the utilitarian? Are a few words on function following a detailed anatomical description enough? Clinically the subject is far too fundamental and too living to be dismissed in that way. If, on the other hand, it is allowed to become too copious, too abstract, and too concentrated on matters of purely academic interest, the average medical student will ask himself and his fellows: What is the practical value of this material? What, for the lack of a better word, may be called the theoretical physiology must stand, but it should as far as possible be illustrated by clinical applications. Every

[2] *L'Enzimoreazione*. Del Prof. Luigi Sivori, Prof. Ulisse Rebaudi, Dott. Ivo Menniti. Con prefazione del Prof. Arnaldo Trambusti. Bologna: L. Cappelli. 1929. (Sup. Roy. 8vo, pp. viii + 222; 12 figures. L.30.)

[3] *Diseases of the Skin*. By George Clinton Andrews, M.D. Philadelphia and London: W. B. Saunders Company. 1930. (Sup. roy. 8vo, pp. x + 1091; 988 figures. 55s. net.)

[4] *Physiology and Biochemistry in Modern Medicine*. By J. J. R. Macleod, M.B., LL.D., D.Sc., F.R.S. Assisted by Roy G. Pearce, A. C. Redfield, N. B. Taylor, and J. M. D. Olmsted, and by others. Sixth edition. London: H. Kimpton. 1930. (Roy. 8vo, pp. xxxii + 1074; 295 figures. 42s. net.)

teacher of physiology has appreciated the general increase of interest in his auditors when he connects the physiology he is teaching with some clinical condition. Probably the best result would be attained by the use of a short didactic textbook of physiology in which commonly accepted facts of the subject are plainly stated, and a textbook of reasonable dimensions and price which deals with "clinical" physiology. It is a common complaint of clinical tutors that many students of medicine fail to carry forward to their clinical studies either an adequate memory or an adequate appreciation of the data given them in the course of their training in physiology. Obviously this may arise because of mental shortcomings on the part of the student, but it may equally readily and with as much justice be ascribed to faults in the teaching of physiology.

THE WOUNDED BEHIND THE LINE.

Unknown Warriors[5] is a war book. It is not concerned with fighting, but describes the immediate aftermath of battle—the fate of the wounded in the hospitals behind the line. The author, Miss K. E. Luard, spent four years in France, and much of that time was in casualty clearing stations. In letters, written at all sorts of odd moments, she gives an intimate description of a nursing sister's life in a hospital near the front line. The slack times preparing for the various "pushes," the rush periods when the staffs were almost overwhelmed with crowds of wounded, the lighter moments when the sisters went picnicking in the woods, the minor horrors of war, the mud, the blood, the shelling, are all depicted by one who, amid the turmoil and stress of war, never lost her interest in her work, her admiration for the bravery, and her sympathy for the suffering that surrounded her. These letters were almost certainly not written with any idea of publication, and in the absence of such motive they ring with an absolute sincerity which adds greatly to their merit. Amid the plethora of literature that is being written, and will still be written, about the war, it is inevitable that such a book should appear. We are fortunate in having the subject presented by one who avoids all cheap devices to disgust her readers and yet draws an impressive picture of the cruelty and horror of war. Two things stand out clearly: the stoical courage of the wounded and the endurance and devotion of the nursing sisters. Miss Luard treats her subject with a sure and certain touch as long as she keeps within the confines of the hospital. When she strays from these well-defined limits and repeats gossip and reports about the military situation, gleaned from various sources, we see the truth of General Rawlinson's statement, "Rumours generally start in the casualty clearing stations." The book may be recommended to anyone—doctor or sister—who is interested in the subject of military nursing. It will also appeal to a wider public, who will find here a fresh picture of the war, drawn from a different angle.

"TABULAE BIOLOGICAE."

The sixth volume of *Tabulae Biologicae*[6] consists of about 800 pages of tabulated data relating to zoology, and concludes with nearly 200 pages of index. The first four volumes of this work dealt with physiology and biochemistry, and the fifth volume with botany. The present volume deals chiefly with invertebrate zoology, for the first four volumes contained a large amount of data concerning vertebrate zoology. The index, however, gives references to relevant matter in all six volumes. As regards the contents of the volume now under review, these are so varied that it is difficult to give a short indication of their character. The data comprise the most varied information concerning the biochemistry, physiology, distribution, life-cycle, and mode of reproduction of the invertebrates. The worms are dealt with particularly fully in 200 pages. The arthropods, however, are only allotted thirty pages, which seems a somewhat inadequate space. The most notable features of the vertebrate section are data regarding snake poisons, and a series of tables providing information about the reproduction of a large number of birds and mammals. The volume should prove of great value to zoologists, and parasitologists also will find in it much useful information. In general we may say that it maintains the high standard set by the previous volumes.

[5] *Unknown Warriors.* Extracts from the letters of K. E. Luard, R.R.C., Nursing Sister in France, 1914-18. With a preface by Field-Marshal Viscount Allenby, G.C.B., G.C.M.G. London: Chatto and Windus. 1930. (Cr. 8vo, pp. 306. 7s. 6d. net.)

[6] *Tabulae Biologicae.* Herausgegeben von C. Oppenheimer und L. Pincussen. Supplement ii (Band vi), *Zoologie.* Berlin: W. Junk. 1930. (7 × 9¾. pp. vi + 636; 74 figures, 2 plates. £5 10s., or subscription price £5.)

NOTES ON BOOKS.

Of the articles in the September instalment of *Annals of Medical History*,[7] two deal with the same subject, for Dr. L. J. Moorman contributes a paper on tuberculosis and genius as manifested in St. Francis of Assisi, and Dr. R. L. Pitfield writes at greater length on John Keats, the reactions of a genius to tuberculosis and other adversities, and graphically describes the tragic mismanagement of his case by various medical advisers, among them Robert Bree and Sir James Clark. Dr. M. H. Goldstein traces the influence on physiological concepts of Claude Bernard, whose portrait is borne on the cover. Bernard in early life wrote a successful vaudeville, *La Rose du Rhône*, and carried another to Paris, where, however, he was fortunately diverted to medicine and became Magendie's official *préparateur* at the Hôtel-Dieu. A syphilitic skull found by Dr. J. C. Tello in an ancient burial place in Peru, which other evidence shows to be pre-Columbian, is described by H. C. Williams, and cannot fail to interest those who differ from Sudhoff's opinion that syphilis was not imported from America. Professor A. S. Warthin continues his well-illustrated account of "The Physician of the Dance of Death," and describes the pre-Holbein manuscripts, block books, and incunabula. Dr. J. H. Lloyd defends Benjamin Rush against his critics, remarking that eulogies are now less common, and that it has become fashionable to "debunk" history. Infant welfare in the eighteenth century is considered by Dr. E. Caulfield, and Mr. Lambert Rogers of Cardiff sketches the history of craniotomy. In the article on William Hunter's obstetrical career Dr. G. C. Peachey adds some knowledge to the store he published in his well-known book on the two Hunters. Dr. R. H. Major writes on the Ebers papyrus, and a catalogue is given by Mr. J. F. Ballard of the 257 incunabula in the Boston Medical Library.

Dr. W. Bolton Tomson of St. Leonards-on-Sea has compiled a useful summary of the present position in a pamphlet entitled *The Housing Problem in its Relations to the Tuberculous, and Tuberculosis Care Committees.*[8] He indicates the great importance of providing suitable homes for necessitous tuberculous persons, with a view to securing more rapid progress in the campaign against this disease. He refers in detail to the views and propositions put forward by various authorities in this country and in France, and offers certain specific suggestions for consideration. One of his main points is that new houses should be made available for selected tuberculous patients at rents they can afford to pay after the expense of getting to and from their daily work has been taken into account. The tenants would be subject to a signed agreement ensuring that everything possible was being done by them to arrest the spread of the disease. The extra expenditure entailed by such provision of housing accommodation should, Dr. Tomson thinks, be undertaken by the local tuberculosis scheme; in some instances it might be advisable to form a subcommittee of the tuberculosis care committee to supervise these tenants. It is pointed out by the author that such a scheme of allocating houses to tuberculous persons has already been adopted in some parts of this country and also of the Continent, and he discusses the possibilities brought into being by the Local Government Act in this connexion.

[7] *Annals of Medical History.* New Series, vol. ii, No. 5, September. Edited by Francis Packard, M.D. New York: P. B. Hoeber, Inc.; London: Ballière, Tindall and Cox. 1930. (7½ × 11½, pp. 453-585; illustrated. Subscription in Great Britain, 45s. per volume of six numbers.)

[8] *The Housing Problem in its Relations to the Tuberculous, and Tuberculosis Care Committees.* By W. Bolton Tomson, M.D. London: Baillière, Tindall and Cox. 1930. (Demy 8vo, pp. 26. 1s. net.)

PREPARATIONS AND APPLIANCES.

Epinalin.

Epinalin is a combination of adrenaline (1 in 10,000) and ephedrine sulphate (1 in 50). The preparation is intended for application to the pharynx and nose by means of an atomizer. It can also be applied to mucous membranes on a swab. Both drugs produce vaso-constriction; adrenaline produces a rapid but transient action, whilst ephedrine produces a prolonged action. The mixture thus ensures an immediate effect followed by a sustained action. The mixture has been found useful in a large variety of conditions, such as asthma, hay fever, and nasal catarrh; it can also be used to check bleeding from mucous membranes. This preparation is made by Messrs. Burroughs Wellcome and Co.

NEW MOTOR LEGISLATION.

BY

STENSON COOKE,

SECRETARY, THE AUTOMOBILE ASSOCIATION.

In the early days of motoring, when the utility of the motor vehicle was in the balance, medical men were among the first to realize the comparative advantages of the motor vehicle. To-day the motor car is indispensable to the medical profession. The few motor cars of those early days were regarded by many as dangerous machines, but since then motoring has made phenomenal strides. The thousands have become millions. The wonderful development of mechanical transport completely altered the every-day life of the public, and new legislation to meet these changed conditions has been long overdue.

Those who motored in the first few years of the present century will have realized that for over twenty-five years the law has been unchanged. During that time Royal Commissions and Departmental Committees have been appointed from time to time to investigate the legislative problems of motor transport, but it is only now that the results of those investigations have been given definite effect. About a year ago the Road Traffic Bill was introduced in the House of Lords. At the beginning of August last that bill received the Royal Assent.

Dangerous Driving.

The new Road Traffic Act abolishes the twenty-mile speed limit imposed in 1903. The futility of this artificial restriction was apparent from the start, and its only real value was as a means of extracting fines from the pockets of otherwise law-abiding citizens for the technical offence of exceeding the fixed limit. There was no question of danger to others, and the twenty-mile limit contributed nothing to the safety of the public.

Perhaps I may be pardoned for saying at this point that as far back as 1910–11 the Automobile Association took the initiative in drafting a new Motor Car Bill containing provisions for cancellation of the speed limit. Since that time there has been a growing body of opinion in favour of repealing the speed limit and increasing the penalties for dangerous driving. The main objection to the fixed limit has always been the fact that, whilst under some conditions it is possible to drive safely at thirty to forty miles per hour, in others a speed of only ten miles per hour might be dangerous.

These important factors are recognized in the new Act, but this does not mean that the dangerous or inconsiderate driver will be allowed to imperil others. The law in regard to dangerous driving is tightened up considerably, and a new offence of "careless driving" is created. Motorists must still drive cautiously and with reasonable consideration for other road users. The courts have comprehensive powers to suspend driving licences, and the penalties for dangerous driving have been increased, for the first offence to £50 or up to four months' imprisonment, and for the second and subsequent offence £100 or up to four months' imprisonment, or to both such fine and imprisonment.

These increased penalties rendered it necessary, in the interests of the rank and file of motorists, that there should be adequate safeguards against unjust convictions for dangerous driving. An amendment was obtained which gives every person charged with this offence the right of electing to be tried by a jury. Also, to remedy the present position in which a motorist may be entirely ignorant of the details of the charge he has to meet until he appears in court, the A.A. was instrumental in securing that where a person is prosecuted for reckless, dangerous, or careless driving he shall not be convicted unless:

(*a*) He was warned at the time the offence was committed; or
(*b*) the summons was served within fourteen days of the commission of the alleged offence; or
(*c*) a notice of the intended prosecution, giving details as to the nature, time, and place of the alleged offence, was served on or sent by registered post to the driver or registered owner of the car within fourteen days of the commission of the alleged offence.

Drunkenness.

The offence of being drunk in charge of a motor vehicle has been extended to cover a person who, when under the influence of *drugs*, is incapable of having proper control of the vehicle. For the first offence a fine up to £50, or imprisonment up to four months, may be inflicted. For a second or subsequent conviction the maximum penalty is increased to £100, or four months' imprisonment, or to both such fine and imprisonment. The courts have also wide powers to disqualify a person from holding a licence. It will be seen that the penalties for this offence are substantially the same as for dangerous driving.

Third Party Risks.

Compulsory third party insurance is also a prominent feature of the new Act. When it comes into operation on January 1st, 1931, a person will not be allowed to use, or permit any other person to use, a motor vehicle on the road unless it is covered by insurance against legal liability in respect of the death of, or injury to, any person caused by that vehicle. Property is not covered. Regulations have yet to be made as to the exact manner in which this will operate, but, in addition to the usual policy, the insurance company will hand to the owner a "certificate of insurance," and when applying for his car licence this certificate must be produced.

Fitness of Drivers.

The question of physical fitness has now been embodied in the law of the land. Individual tests of fitness before driving licences were granted was the original proposal, but investigations showed that the small benefit to be derived from these individual tests would be out of all proportion to the expense and administrative work entailed in setting up the necessary machinery throughout the country for carrying out such tests. As an alternative, every applicant for a driving licence will be required to make a declaration as to whether or not he is suffering from any disease or physical disability which would render it dangerous for him to drive.

The important question as to what diseases or defects shall constitute a definite bar to the driving of a motor vehicle is still the subject of discussion, but epilepsy and very defective eyesight will doubtless figure in this. There is, however, every indication that the regulations in their final form will not be unduly restrictive or irksome.

Other Provisions of the Road Traffic Act.

The provisions of the Act relating to the prevention of "joy riding" or tampering with cars are of considerable interest to medical men, who are compelled unavoidably to leave their cars on the roadside for various periods. No longer will the individual who takes away the car of another be able successfully to advance the plea that he was only "borrowing it" and intended to return it. That, in effect, is what has happened in the past. The person who drives away a car without the consent of the owner or other lawful authority will be liable to heavy fines and substantial terms of imprisonment. Similarly, a person who interferes with the brakes or other part of the car mechanism will be subject to heavy fines.

From time to time there has been a good deal of discussion as to the minimum ages at which persons should be allowed to drive various types of motor vehicles. The Act alters the present minimum age for motor cyclists from 14 to 16, and also restricts the driving of heavy locomotives, light locomotives, motor tractors, and other vehicles outside the ordinary motor car class to persons of not less than 21 years of age. In each case persons who were driving for the six months prior to January, 1930, are unaffected.

These are a few of the important changes contained in the Road Traffic Act. There are other new provisions such as (*a*) prohibition of motor racing on a highway, (*b*) restrictions as to pillion riding, (*c*) preparation of a Highway Code by the Minister of Transport, (*d*) the limitation of hours of work for the drivers of heavy motor vehicles, (*e*) the appointment of Traffic Commissioners, (*f*) the institution of mobile police, etc. Space does not permit of detailed reference to all these points, but, taking the Act as a whole, there is no doubt that it contains many improvements on the obsolete law of the past twenty-five years, and that, whilst the reasonable motorist need have no fears as to the effect of the new Act, it is clearly a definite attempt by Parliament to deal severely with the dangerous or drunken driver, and provide measures for increasing the safety of the public.

British Medical Journal.

SATURDAY, NOVEMBER 15TH, 1930.

PUBLIC HEALTH AND MATERNITY WELFARE.

THE judicious person interested in public health matters, and in social movements related thereto, reads each year with great advantage the annual report of the Chief Medical Officer of the Ministry of Health. Most of the subjects dealt with in that volume are of first-rate importance, and Sir George Newman's method and style in setting them forth are always extremely attractive. In last week's *Journal* (p. 792) we began our summary of his report for the year 1929,[1] making special reference to three of its sections, and a further notice appears this week at page 836. It is to be hoped that these short articles will not satisfy the curiosity of our readers, but that at least the greater part of the report (varying in accordance with varied interests) will be widely studied. For buried within it, as usual, will be found a number of admirable essays full of acute observations and suggestions on matters of real moment to the medical profession and to the public. As illustrations may be mentioned the paragraphs touching the hygiene of pregnancy, contraceptive methods, the efficiency of the health insurance service, the increase in sickness insurance claims and medical certification, consultation of medical officers of health with the profession in general, the imperfect notification of tuberculosis, "cancer curers," and the education of the public in health matters.

It may be that "buried" is too strong a word to use of these paragraphs, yet it seems certain that some medical officers of health and many members of public health authorities, and other interested persons, would never be in a position to avail themselves of their suggested wisdom if attention were not specifically drawn to them. At the present time, when very important new health duties have been placed upon county borough councils and county councils, many of whose new members possess much zeal but little experience, this is of peculiar moment. Intensive agitation by relatively small bodies of persons in favour of this or that medical remedy, or surgical procedure, or social panacea, is liable to have an altogether undue effect in the absence of scientific knowledge and an atmosphere of reason. It is obvious, too, that great importance should be attached to the appointment of new medical officers in the public health service in view of their extended duties, and especially to the staffing of the Poor Law hospitals which have been transferred to the new administration. "The appointment of local medical practitioners, or specialists, for outdoor or institutional service, the question of paying wards, the provision of facilities for medical education in institutions, the extension or restriction of the medical services of the Authority—all these are issues in which the medical officer of health should take such counsel as will better qualify him to offer timely and competent advice, and he should do this whether or not there be a local medical advisory committee. In areas in which there are medical schools or university and hospital centres, the medical officer should advise his Authority to establish means for close and friendly co-operation. Full advantage should be taken by the Authority of the special skill and experience in medicine and surgery thus available." There should be no lack of willingness on the part of any branch of the medical profession to help local authorities and their officers in such ways.

Another urgent matter in relation to the state of the public health is reviewed by Sir George Newman in his chapter on maternity and child welfare. This is peculiarly opportune because the latest returns of maternal deaths are now given, and because the recent reports of Departmental Committees and the maternity schemes of responsible bodies are available for comparison one with another. As regards the statistics these do not reveal any material improvement in the situation generally, but they demonstrate that averages, as is well known, may be fallacious, and that all parts of the country are not alike in the dangers of childbirth. In London the maternal death rate is lower than in any other area, both for puerperal sepsis and for other causes; and the rate for Wales and for the northern districts of England is notably higher than elsewhere. There are even particular towns, especially some six or seven in Lancashire, which reappear year after year as those with the highest rates. Though there is room for improvement everywhere no doubt, it is safe to say that an intensive campaign in such towns and in Wales would be reflected in a material improvement in the average figures for the whole country. Perhaps this consideration is among those which have influenced the Minister of Health in his recent announcements that the immediate policy of the Government will be to urge, and if necessary to enforce, upon local authorities a fuller use of the powers they now possess rather than to attempt to establish at once any more widespread and comprehensive service.[2] Economic circumstances probably furnish less justification for the postponement of a national maternity service on the lines proposed by the British Medical Association and the Departmental Committee than for that of any other social service; but no serious objection can be urged against the Minister's policy provided certain conditions are fulfilled. Such conditions are: (1) that when any further ante-natal clinics are established, and in connexion with any extension of the work of existing clinics, the local general practitioners shall be fully utilized for such work, so that practitioners who are liable to be called in at the confinement itself may be those who have knowledge of, and responsibility for, the patient during pregnancy; (2) that arrangements for specialist consultation and service, whether ante-natal or at the time of the confinement or thereafter, shall be made with part-time consultants; (3) in general, that no provisional arrangements shall be made which would interfere with the early establishment of the complete service, and especially that nothing should be done to prevent the linking of maternity work with a national insurance system; and (4) that negotiations shall be at once begun with all those concerned in the establishment of a national maternity service so that the settlement of the difficult financial and administrative questions involved may be facilitated. Mr. Greenwood has himself enunciated this last condition as part of his policy, and appropriate action may now be looked for. Meanwhile, there is every reason to proceed with such reforms in the training of midwives and the education of medical students as have been recommended by the Departmental Committee, or as may emerge from the consideration now being given to the subject by the General Medical Council.

[1] *On the State of the Public Health.* Annual Report of the Chief Medical Officer of the Ministry of Health for the year 1929. London: H.M Stationery Office. 1930. 3s. 6d net.

[2] *British Medical Journal*, October 18th, p. 657, and November 1st, p. 751.

SPECIFIC AGGLUTININS AND PATERNITY.

The presence in the blood of individual specific substances by which one man can be recognized from another, and the possible transmission of such characters from parent to offspring, are a matter of interest alike to the geneticist, to the clinician, to the legal authorities, and to the doubting parent. If such individuality were capable of demonstration many doubtful claims of legitimacy could be definitely settled, and if it could be definitely detected in blood stains, for example, a great advance in criminal investigation would be made. The presence in human blood of specific agglutinins and agglutinable substances, and the knowledge that these are transmitted according to Mendelian principles, has certainly done something towards reaching this ideal. Professor Karl Landsteiner of Vienna, whose name is so closely associated with research on the specific isohaemagglutinins in blood and the distribution of such factors in four main groups, has just been awarded the Nobel prize in medicine, and this must be a source of satisfaction to all those who have so keenly followed his work.

Since Landsteiner first observed, in 1900, that the agglutination of the red cells of one individual by the serum of another was by no means a chance process, but that it followed definite relationships, a considerable literature concerning blood groups has grown up, scattered over a wide range of journals. The publication of a handbook focusing the work on this interesting subject is opportune, and, in his *Blood Grouping in Relation to Clinical and Legal Medicine*,[1] Dr. Laurence Snyder has brought together the salient facts and hypotheses. His book deals with the indications for and against transfusion, the choice of a donor, and the various methods, direct and indirect, used in the transfusion of blood. Some attention is paid to the technique of blood grouping, but this is rather sketchy, as is the technique for identifying the group in blood stains for medico-legal purposes. These parts of the book occupy in all about thirty pages. More interesting are the chapters on the hereditary transmission of the group characters. Snyder discusses in a simple manner the Mendelian hypothesis of heredity, and applies this to the transmission of factors associated with the red corpuscles to form the four blood groups in man. Von Dungern and Hirzfeld's original hypothesis that these were inherited as two independent pairs of Mendelian factors (the agglutinogens A and B being dominant to their respective agglutinins *a* and *b*) is discussed, together with the more recent views of workers in this field. The hypothesis of triple allelomorphs put forward first by Bernstein from statistical observations, and confirmed by Snyder and others on observed hereditary data, is dealt with at some length. According to this the genetic factors responsible for the four groups are all located on the same spot on a single pair of chromosomes. Three factors are supposed, two of which (A and B) are dominants, and one (O) recessive. From the point of view of inheritance the hypothesis of triple allelomorphs does not question the validity of the original hypothesis, the only difference being in unions in which one of the parents is in group AB, in which the possible blood groups in the offspring are more restricted.

There seems to be no doubt that isohaemagglutinogens never appear in a child unless they were present in one of the parents, and when neither parent has an agglutinogen none of the children can have it. The group test therefore offers a means of deciding certain questions of paternal identity. Snyder discusses in some detail the medico-legal value of the group test and also its limitations with reference to alleged paternity. Reference is made to the fact that no one of the various hypotheses of heredity has been satisfactorily proved, and also to the fact that even the division into four groups only is open to certain objections. Landsteiner and Levine's work, showing that there are a number of more or less definite agglutinable factors within the four major groups, is mentioned in this regard. Todd's work on cellular individuality is too recent for inclusion, but this work suggests that the red cells of any one animal have distinctive characters by which they can be clearly differentiated from the cells of any other animal of the same species by comparatively simple serological methods. Todd has shown also that such specificity is transmitted by one or both parents to the offspring. Thus, if a polyvalent serum, prepared by using the blood of a large number of hens as antigen, is exhausted with the blood of both father and mother, it will not agglutinate the blood of the chickens of these two birds. This work is not applicable to human beings at present, but it points to an almost infinite range of specificity within species. These specific bodies differ apparently from the specific bodies which are associated with the four recognizable blood groups.

In passing, we might mention Zangemeister's work on the optical properties of the blood of parent and offspring. This research suggests that when the blood of closely related persons is mixed, the luminosity, when viewed through the ultra-microscope, tends to diminish, due to agglutination of the protoplasmic colloids. Zangemeister's work is in the experimental stage, but it is of the greatest interest, not only in connexion with proof of paternity, but as another proof of the individuality of the proteins which go to make up protoplasm.

[1] *Blood Grouping in Relation to Clinical and Legal Medicine.* By Laurence H. Snyder, Sc.D. London: Baillière, Tindall and Cox. 1930. (22s. 6d. net.)

DR. CHEVALIER JACKSON.

The name of Chevalier Jackson has long been familiar not only to every specialist in laryngology, but also to every English-speaking practitioner of modern methods in medicine. His recent visit to London, therefore, is an event of unusual interest. As Mr. Frank Rose, president of the Section of Laryngology of the Royal Society of Medicine, said in welcoming Dr. Jackson at the dinner given to him last week, a large number of those to whom his name, his writings, and his instruments are well known, but who have never been able to visit Philadelphia, have now had the opportunity of meeting him face to face, and of hearing him speak on several occasions, an experience that will leave an indelible impression. The president speculated on which of their guest's achievements would secure for him immortality: his skill in operating on cancer of the larynx; his dexterity in extracting foreign bodies; or his bronchoscope. Dr. Jackson's value to his own generation is of a rather different order.

It is no more than a few decades since the laryngologist was a person who did little more than inspect the vocal cords with a mirror. Laryngology dates naturally from the invention of the laryngoscope by Manuel Garcia in 1855. Development since then has been rapid and steady, and in this no one on either side of the Atlantic has played a more active part than Chevalier Jackson. He is still advancing the frontiers of laryngology. The invitation from the Medical Society of London to open a discussion on malignant disease in the chest is a remarkable and gratifying recognition of this. The Royal Society of Medicine,

too, has acknowledged the services of Dr. Jackson to general medicine as well as to laryngology by inviting him to address the whole society. This is the highest compliment it can pay to anyone who is not one of its own members—an honour jealously guarded and reserved for very few. The Barnes Hall has never held a larger or a more appreciative audience than that which listened to Dr. Jackson's address on the pathology and treatment of suppurative diseases of the lungs, reported in our issue of October 25th.

The welcome that has been extended to Dr. Chevalier Jackson sprang from a profound admiration for his personality and his work. His modesty and his generous acknowledgement of the help received from his associates and assistants are traits particularly gratifying to his British admirers. To Mr. Herbert Tilley thanks are due for persuading this distinguished guest to accept the hospitality of London, and we trust it will not be long before he repeats the visit.

AMPUTATIONS.

By the time the great war came to its official end British limb-fitting surgeons had generally agreed on what their experience led them to think were the principles upon which amputations should be performed and what were the most suitable sites, having regard to the subsequent fitting of useful prostheses. The discussion held in the Section of Surgery of the Royal Society of Medicine on April 2nd, on which we commented at some length in our issue of April 12th, and the discussion held on November 4th in the Orthopaedic Section (reported this week at page 823), show that the last nine years' experience has not caused surgeons to change their views except in regard to very few procedures. Mr. Verrall summed up the developments of amputation practice in the last ten years as follows: "an alteration in opinion as to the length of the thigh stump, the value of the Syme and of the Stokes-Gritti, the question of drainage in amputations, of treatment of the nerves, a consideration of the choice in the case of mid-tibial amputation between an anterior and a posterior flap based on the trophic condition of the leg, and finally the admission of the operation of arthroplasty as a reasonable and eminently successful proceeding for the treatment of stiff joints in amputation stumps." It may therefore be assumed that the theory and practice of amputation has become, for the time at least, stabilized, and the paper read by the president of the Orthopaedic Section, Mr. P. Jenner Verrall, should become a permanent guide to those surgeons all over the country who are liable to be called upon at any moment to amputate a limb. The fearful tax laid on life and limb by motor vehicles, which produce as many casualties in a year as a quite respectable military campaign, has vastly increased the annual number of such operations. We suggested in our leading article in April that the unfavourable opinion formed of the late results of certain typical operations was perhaps due to the experience having been drawn from war cases, in which the condition of the tissues was unfavourable. It appears, however, from Mr. Verrall's paper, that this is not the case, for unfavourable late results of Syme's amputations and of those with long thigh stumps have been met with in civilian practice. In the case of Syme's amputation the recent experience of orthopaedic surgeons appears to be in conflict with that of the limb-makers, most of whom can put on record cases which, after many years, are still satisfactory. One well-known firm wrote on this subject as follows:

"We have quite a number of customers who have been wearing artificial feet for Syme's amputation for ten years or more, some for twenty, thirty, and even forty years, and although from the aesthetic point of view we do not like the amputation, as it is very difficult to conceal the fact that a limb has been lost, especially in the case of a lady, we are bound to state that, considered as an amputation only, it is an entirely successful one."[1]

Can it be that some change in the procedure of late years has unfavourably affected the durability of good primary results? It is admitted by its critics that Syme's amputation gives in some cases excellent and lasting results. Is there no way of telling in advance the durable from the transient good stump? The question is important to the patient, for there is no comparison in comfort and in economy between the Syme prosthesis, which leaves the knee free, and that for a mid-leg amputation, with its cumbrous knee-joint and tight-fitting laced thigh corset, involving as it does the necessity for very skilled and accurate fitting of the socket below the knee.

[1] *British Medical Journal*, 1930, i, 693.

PREVENTION OF PSYCHOLOGICAL DISORDERS.

ALTHOUGH psychologists are tending more and more to the view that psychological disturbances in the adult are derived from faulty environment in childhood or infancy, the avoidance of such disturbance is seldom regarded as a serious part of preventive medicine. Dr. R. D. Gillespie, in his paper (printed at page 807) on the psychology and psychopathology of childhood, puts this aspect of the work of the psychologist in a clear light. In dealing with children the psychologist has the advantage of handling young material, plastic and gifted with marked powers of recuperation. A child is not merely remarkable for the suddenness with which he is prostrated by disease, but for the vigour with which convalescence progresses; and in his mental reactions he shows a similar buoyancy. Usually, Dr. Gillespie finds, psychological symptoms in the child depend on the frustration or misdirection of some of his tendencies by his environment, and an adjustment of the offending environmental factors causes the symptoms to disappear. No analysis of the child's mental state is usually necessary, and the adjustment can be made through interviews with parents as soon as the fundamental problem has been solved. There is a danger, against which he offers a warning, of interpreting the child's mental state in the terms of adult experience; such an attitude must inevitably bias the judgement and lead to errors. In the child the prognosis for psychological disturbance, properly treated, is nearly twice as good as in the adult, according to a small group of statistics obtained by Dr. Gillespie at Guy's Hospital; in this group only about a third of the adult patients could be classed as improved or cured, while the number of children who recovered reached 65 per cent. There is a possibility that a proportion of these children might have recovered without the aid of the clinic, so strong is the urge to adaptation, but it is equally probable that a certain number of those who found adjustment difficult in childhood would have progressed to a more serious disability in later life if they had been suffered to go untreated. It is on these grounds that Dr. Gillespie urges the importance of establishing a sound adjustment in childhood, believing that herein lies the prevention of adult neurotic and, perhaps, psychotic disorders. He points out that certain morbific traits appear in childhood, at a time when characteristics of a similar type are modifiable, though it has yet to be decided whether the morbific and modifiable characteristics are the same. There is an opinion, however, among certain of those psychologists who have worked with children, that the development of adult psychoses is being prevented, at least in some cases. If this is really so its importance can scarcely be over-emphasized. On economic grounds alone, the cost to the community of mental hospitals is considerable, while the neuroses are responsible for a heavy toll in loss of work every year. At present our knowledge of psychological disorders in childhood is handicapped by lack of data other than the retrospective statements of adults.

Dr. Gillespie believes that the psychologically minded paediatrician is the person best fitted to carry out research among children, by observation of the onset of these disorders. The psychiatrist, who at present sees only the end-results, would thus be enabled to obtain his material in the early stages, by reference from the paediatrician, and symptoms due to maladjustment would be open to treatment before they had acquired any pronounced hold on the character of the child.

THE MUSCLES OF THE LARNYX.

The annual Semon Lecture, under the auspices of the University of London, was delivered at the House of the Royal Society of Medicine, on November 6th, by Mr. V. E. Negus. The lecturer devoted himself to showing, with the aid of demonstrations in comparative anatomy and physiology, how well proved was the theory put forward by Sir Felix Semon with regard to the muscles of the larynx. This organ, said the lecturer, might be described as a scaffolding of cartilages and two sets of muscles, which he called respectively the sphincteric and the dilator. Semon, in his *Clinical Remarks*, published in 1881, laid it down that if there was any interference with the common nerve supply to the two groups of muscles, the dilator muscles were paralysed sooner than the sphincteric. In remarking upon this far-reaching law, the lecturer traced the evolution of the larynx from its primitive forms to its complicated structures in man. Semon himself started by regarding the larynx as the organ of voice, but from a study of comparative anatomy it was evident that a very large number of animals never used it for this purpose; vocalization was only a secondary function of the larynx. From a study of lunged fish, such as the Amazon mud-fish, it appeared that the primary function of the sphincteric muscles of the larynx was the protection of the respiratory epithelium. If this muscle did not act, certain fishes would be drowned as soon as they went under water, but the sphincteric muscle was able to close the larynx like a purse-string. The lecturer considered this to be an important factor in explaining Semon's theory that the sphincteric muscle of the larynx originally came into being before the dilator muscle, and had a vital valvular function in protecting the lungs. It was the general rule, seen in other parts of the body, that an organ of vital importance and earlier origin survived an organ of less vital importance and later origin. Various changes and adaptations had taken place in the sphincteric muscle in the course of evolution. Thus some creatures, such as crocodiles, were enabled to keep their mouths open under water and catch prey, so long as their snouts were above the surface. In some animals the protective closure was supplemented by closure of the nostrils, and there were curious modifications of the larynx in ruminating animals. Turning to the dilator muscles, Mr. Negus said that these did not belong to the larynx in the simpler species; later, they became included, and in man assumed a much more important position. Here again he showed examples of the larynx in various animals, including the tilted larynx in the muntjac or American barking deer. In man the dilator muscles had assumed a greater importance. They had to contract to hold the glottis open, otherwise the membranous folds would stick together and air could not enter. Nevertheless, the greater importance of the sphincteric muscles, derived from their earlier origin, remained, and Semon's law still held good. There were certain secondary functions of both groups of muscles. The sphincteric muscle, for example, had a function of its own in retaining air in the lungs, and the dilator muscle the function of contraction during simultaneous respiration and deglutition, a mechanism brought to perfection in whales and porpoises, where the dilator muscles had a part to play in the highly specialized modification of the blow-hole on the top of the head. Phonation was one function of the combined sphincteric and dilator muscles, but it was a function acquired late. The larynx happened to be a convenient organ of voice, but it was not evolved for that purpose, its primary object being the protection of the air tract. Semon thought that the movement of the glottis might be looked upon as part of respiration. Actually, it was the first act in respiration, the glottis opening at the beginning of inspiration, before the respiratory muscles contracted; also it started to close before expiration had ended. After anastomosis of the phrenic nerve, it was interesting to note that the timing had changed, the movement of the vocal cord taking place at the same time as contraction of the diaphragm. Sir David Ferrier once suggested that the muscles of the larynx might be compared with the muscles of the limb, in which the extensor muscles were paralysed before the flexor, should there be any injury to the nerve supply; that was probably a protective mechanism. In an arboreal species it was obviously most important for an animal to retain the power of hanging on to a branch. But the same question of relative importance was involved in the larynx, and in every respect comparative anatomy supported Semon's theory. At the close of the lecture Mr. Negus was presented with the Semon medal by Lady Semon.

DRAFT POTTERY REGULATIONS.

In our issue of March 23rd, 1929 (p. 562), we called attention to the reports on the incidence of silicosis in various industries—the pottery industry, the sandstone industry, and others. The Home Office wisely approaches the considerable problems arising out of the evidence so obtained in two ways: first, by schemes entitling those who are found to be suffering from silicosis (or the dependants of those who have died) to obtain compensation; and, secondly, and as far as possible contemporaneously, by the issue of Regulations to minimize the amount of siliceous dust evolved in the processes. So far as the pottery industry is concerned, the evidence made it clear that periodic examination by a medical board was desirable. As the constitution of such a board is now in sight, since the passage of the Workmen's Compensation (Silicosis and Asbestosis) Act of last session, the Home Secretary has issued draft Regulations (additional to the existing Pottery Regulations) in regard to dust prevention. He emphasizes their urgency by stating that, since the Various Industries (Silicosis) Scheme came into force (as recently as in February, 1929) 113 cases of total disablement, including 54 deaths, have been reported. Twelve processes (mainly those in which the dust from ground flint is in question) are specifically named which must be carried out under an efficient exhaust draught. Everything turns on what is meant by "efficiency" in this connexion. We regret to see that no attempt is made at a definition. Can it not be determined by an instrument—an anemometer, or the height to which a column of water in a U tube is drawn up—or by a permissible limit of milligrams of dust per cubic metre of air at breathing level (as in South Africa[1]), or by the number of particles under 10 microns as tested by the Owens dust counter (as in Sydney sandstone mining[2])? Is it still to be regarded as efficient if the back of the hand is chilled, or if a handkerchief is drawn inwards by the draught at the exhaust opening? This is the most practical urgent point in the matter of silicosis—attainment and enforcement of some standard. More would be accomplished in the prevention of silicosis by the determination of the dose of particles of free silica under 10 microns which, inhaled daily, would in the course of ten years produce disabling silicosis, than by all the elaborate

[1] Contributions to the Study of Miners' Phthisis. By A. Mavrogordato. South African Institute for Medical Research, 1926, p. 61.
[2] Extract from the Report of the Director-General of Public Health, New South Wales, for the year 1927.

dissertations now being published on its prevalence throughout the world. It is impossible not to extend sympathy to employers and workpeople alike over the risks attendant on so useful and, in its output, so beautiful an art and craft. The industry has, in magnificent manner, overcome the risk from lead poisoning which was another of its banes in bygone years. In 1898, for example, from pottery works alone 457 cases of saturnism were reported; last year the number was 14. This success should inspire all concerned to cope with the trouble now brought to light.

REGISTER OF BIO-PHYSICAL ASSISTANTS.

The Representative Body of the British Medical Association in July, 1928, pointed out the need for the registration of competent and suitable lay persons to whom doctors could with confidence send their patients for electrical treatment and actinotherapy. In the following December the Science Committee presented to the Council a report on the practical steps to be taken to organize courses of training in these procedures, and to prepare a roll of persons who had satisfactorily followed such courses. A small committee of experts was then formed to draft general lines of procedure, and an arrangement was entered into with the Society of Apothecaries of London to institute a register of approved persons under the conditions prescribed. Regulations were drawn up and the first *Register of Bio-Physical Assistants* was printed and published a few months ago under the direction of the Society of Apothecaries.[1] This contained full details of what is required in order to become a registered bio-physical assistant, a statement of the undertakings which registered persons are required to sign, and the first list of names arranged both alphabetically and topographically. At the suggestion of the Science Committee, and with the co-operation of the Society of Apothecaries, we publish in the *Supplement* this week, for the convenience of medical practitioners at home and abroad, the topographical part of the *Register of Bio-Physical Assistants* revised to October 31st, 1930. Those whose names appear therein have been approved as persons "competent to dispense the direct current, ionization, faradic currents, sinusoidal currents, diathermy, high frequency currents, light and heat, and ultra-violet light."

PUBLIC HEALTH CONGRESS IN LONDON.

A congress and exhibition are held every November at the Agricultural Hall, Islington, organized by a council composed of representatives of the Ministry of Health, the Board of Education, the Board of Control, and the various associations of municipal corporations, county councils, and other public bodies. The congress is devoted in alternate years to local administration on the engineering and public works side, and to local administration on the side of public health. This year it is the turn of public health, and the congress, which is to be opened by Mr. Arthur Greenwood, the Minister of Health, on November 17th, and to continue until November 21st, has a very full and interesting programme. Among those who are giving addresses are Sir Arthur Newsholme, who is to speak on medicine and the State; Dr. W. M. Ash, on the school medical service; Professor E. Mellanby, on maternal mortality; Dr. T. Beaton, on the mental health problem; Dr. E. S. Litteljohn, on mental deficiency; and Professor C. S. Myers, on industrial psychology. The chairmen at the various sessions include Sir Herbert Samuel, Sir Charles Trevelyan, President of the Board of Education, Miss Susan Lawrence, Sir Arthur Robinson, and Mr. L. G. Brock. A special discussion is to take place on the morning of November 21st on the sterilization of the unfit, and among the announced speakers are Dr. W. F. Menzies, Dr. A. F. Tredgold, Dr. C. P. Blacker, and the Right Rev. Monsignor Newsome. In addition to the ordinary sessions, meetings of various associations are to be held in connexion with the congress. The British Hospitals Association is to discuss hospital contributory schemes, the Association of Hospital Officers is to take up the subject of co-operation between the voluntary and council hospitals, and other bodies are to debate sewage disposal, water supply, and public cleansing problems. Evidently a full week's work is anticipated, and delegates are expected from very many of the local authorities in Great Britain. An exhibition filling the vast space of the Agricultural Hall, and including plant, machinery, and materials used in the various public health services, will be held during the week.

[1] *British Medical Journal*, May 31st, 1930, p. 1012.

"TABULAE BIOLOGICAE."

The six volumes of collected data published in Berlin under the title *Tabulae Biologicae* deserve the attention of workers in biological sciences. The appearance of the first volume of the series in 1925 was welcomed warmly in these columns, for the difficulty of hunting down data is well known to all investigators. Collected tables of data have long been recognized as an elementary necessity by chemists and physicists, and the lack of anything in biology that corresponded to the volumes of Landolt-Bornstein or Kaye and Laby was a very serious hindrance to research. *Tabulae Biologicae* evidently met a widely felt need, for the work, which was originally planned to comprise four volumes dealing with physiological and biochemical data, has since been expanded by the addition of botanical and zoological volumes. The collection of biological data, even on a modest scale, is a remarkably difficult and tedious task, and it is impossible to escape a feeling of amazement when glancing through the thousands of pages of tabulated data brought together in these volumes. Biological workers certainly have reason to be grateful to the authors who have completed this labour, and it is pleasing to learn that the volumes have met with widespread appreciation. The editors announce that the series will be continued in periodical form; one volume in four parts will appear annually. The bulk of scientific literature becomes every year more overwhelming, but we can welcome this particular addition without hesitation, because it will serve to reduce rather than increase labour.

Sir Frederick Gowland Hopkins, D.Sc., F.R.C.P., Professor of Biochemistry in the University of Cambridge, has been recommended by the President and Council of the Royal Society for election to the presidency of the Society at the anniversary meeting to be held on December 1st.

Sir Arthur Keith, M.D., F.R.S., was, on November 8th, elected Rector of the University of Aberdeen in succession to the late Earl of Birkenhead.

At the Yeomanry Dinner to be given by the Master Wardens and Court of Assistants of the Society of Apothecaries of London on Tuesday next, November 18th, the honorary freedom of the Society will be conferred upon Mr. Arthur Greenwood, Minister of Health, and the gold medal will be presented to M. Fourneau.

"ORGANIC GASTRIC SYPHILIS."

Correction.

We hasten to correct an unaccountable blunder which occurred in our last issue, dated November 8th, 1930. Dr. David Smith, the author of the article on "Organic gastric syphilis," printed at page 773, was described in the heading as "Assistant Physician, Royal Infirmary, *Edinburgh*." This, of course, should be "Royal Infirmary, *Glasgow*."

DINNER TO DR. CHEVALIER JACKSON.

The President and Council of the Section of Laryngology of the Royal Society of Medicine held a dinner at the Langham Hotel, London, on November 7th, in honour of Dr. Chevalier Jackson, professor of bronchoscopy and oesophagoscopy, Jefferson Medical College and University of Pennsylvania Graduate School of Medicine. The chair was taken by Mr. Frank A. Rose, president of the Section, and the large company included members of the Section from all parts of Great Britain, many of whom had had the opportunity of welcoming Dr. Chevalier Jackson on the previous evening at an informal reception given by Sir StClair Thomson.

The President, in proposing the health of the guest, began by contrasting his own first experience of seeing an oesophagoscope used in 1899 with his experience at the Jackson Clinic in Philadelphia twenty years later, when he saw Dr. Chevalier Jackson remove a foreign body from the bronchus in about two minutes. Mr. Rose suggested that the man they delighted to honour that evening would perhaps be remembered by future generations not so much for his success in operating on the larynx for carcinoma nor for his dexterity in removing foreign bodies, but would rather be compared to Elias Howe, who invented the sewing machine. Howe showed the world that the eye of a needle ought to be at its point; similarly Chevalier Jackson would perhaps be remembered longest as the man who taught the world to place the light of a bronchoscope at its tip. It might be that when the memory of his other achievements had grown dim, as they merged into the ever-growing stream of medical knowledge, Chevalier Jackson would for all time be known by his bronchoscope.

Mr. Herbert Tilley, in seconding the toast, said that if "worship of a hero is transcendant admiration of a great man," then, and without flattery, he could assure Dr. Chevalier Jackson that he was surrounded by a great company of devout worshippers. It might be no compliment to speak of Dr. Jackson's great work, *Bronchoscopy and Oesophagoscopy*, as a classic, because that had been defined as "a book which everyone praises but no one reads," whereas this volume was such a source of light and inspiration that it might well be termed the bronchoscopist's bible. Mr. Tilley then referred to the brilliant exposition of the subject which Dr. Chevalier Jackson had recently given before the Royal Society of Medicine, where his audience enjoyed a vivid and artistic description of his methods for dealing with suppurative lesions of the lungs. How much he was appreciated in his own city was shown four years ago when Philadelphia awarded him the Bok Memorial Prize. Furthermore, he had already anticipated a monument to his name by building a wonderful museum of pathological lesions and of foreign bodies removed by him from the lungs or oesophagus. Mr. Tilley said, in conclusion, that the sentiments he wished to express on behalf of his colleagues would be most fitly rendered by a modified verse of the poet-physician of Philadelphia, Weir Mitchell:

> "And now you've found with us a second home,
> And in the practice of Life's happiest arts
> You little guess how readily you've won
> The added friendship of our open hearts."

Dr. Chevalier Jackson responded to the toast in a speech of characteristic modesty. He began by referring with a touch of sadness to his father, who was born in Hull about a hundred years ago, and, after sailing to the United States, never returned to England. He felt that this splendid welcome would have delighted his father were he still alive. It had been suggested, Dr. Jackson said, that he might speak on "the making of a bronchoscopist," but a bronchoscopist was born, not made, and in illustration of this he told, with dry and sparkling humour, two stories against himself.

The health of the other guests was proposed by Dr. Dan McKenzie, and responded to by Dr. T. Watts Eden, President of the Royal Society of Medicine, and Sir Humphry Rolleston, Regius Professor of Physic at Cambridge.

THE STATE OF THE PUBLIC HEALTH.

SIR GEORGE NEWMAN'S REPORT FOR 1929.

[Second Notice.*]

The average age of the population of England and Wales is steadily rising, owing to a decrease in the proportion of children to the total population, and an increase in the proportion of persons past the prime of life. In 1928 the birth rate exceeded the death rate by 5 per thousand living, which meant a net increase of 5 for every thousand of the population. This figure was less than half that which obtained during the quinquennium 1921–25, and very little more than one-third of the figure for 1916–20. In 1929 there was a further decrease in the birth rate (from 16.7 per thousand to 16.3), and a substantial increase in the death rate (from 11.7 to 13.4), so that the net increase of the population was further reduced from 5 to just below 3 per thousand living. The number of births (643,673) is the lowest, and the number of deaths (532,492) the highest recorded for a great many years. The mortality of infants during the first year of life rose to 74 per thousand births, as against 65 the previous year, so that of the reduced number of children born still fewer survived infancy.

Causes of Death.

The principal certified causes of death were the following:

	Per 1,000 deaths.
Diseases of the heart and circulation	225
Bronchitis, pneumonia, and other respiratory diseases	157
Cancer, malignant disease	107
Diseases of the nervous system	82
All forms of tuberculosis	71
Influenza	55
Diarrhoea, enteritis, and other diseases of the digestive system...	52
Non-venereal diseases of the genito-urinary system	43
Violence	41
Old age	40
Premature birth and diseases of early infancy ...	34
Measles, whooping-cough, and diphtheria	24
Other causes	69

The deaths from influenza, which numbered 7,754 in 1928, rose, in consequence of the spring outbreak, to 29,084 in 1929. Owing to the complications following influenza, the death rate from pulmonary tuberculosis and from respiratory diseases also increased.

Epidemic Diseases.

Small-pox showed an increased prevalence in 1929 in and near London, accompanied by a decline in most other parts of the country. Generally the disease was of the mild variety. The notifications of enteric fever (including paratyphoid) were considerably fewer in 1929 than in the two previous years. Scarlet fever continued to be of the mild type, and measles, though once again the most fatal infectious disease of childhood, showed a smaller number of deaths. Several local authorities, particularly in London, are using the serum of convalescents to protect selected children who are found to have been exposed to measles infection. In infectious diseases hospitals of the London County Council convalescent serum is also being used to check the spread of infection in the wards. There were no extensive outbreaks of diphtheria during 1929, with the exception of one of 237 cases with 12 deaths at Poole. The investigation of psittacosis is described in the report; the hypothesis of a filterable virus as the causal agent is regarded as the most probable, and certain observers are engaged, with the assistance of the Ministry, in the arduous and prolonged researches necessary to establish it. It is hoped shortly to publish a special report on the subject. The decline in the notifications of encephalitis lethargica continues; the notifications were little more than one-fifth of the number in 1924. There was a slight

* The first notice of the Annual Report of the Chief Medical Officer of the Ministry of Health for the year 1929 appeared in the *Journal* of November 8th (p. 792).

rise in the number of notifications of poliomyelitis and polioencephalitis, though the death rate was lower. Cerebro-spinal fever continued the upward tendency remarked since 1923.

Rheumatism: Tuberculosis: Venereal Disease.

After quoting from recent writings on acute rheumatic infection in childhood, Sir George Newman expresses the opinion that no sufficient case has been made out for the routine removal of apparently healthy tonsils in the rheumatic or potentially rheumatic child simply as a measure of prophylaxis against acute rheumatism. The removal should only be undertaken if there is some definite local condition, such as obvious enlargement or disease, associated adenitis, or ill-health caused by the obstructive size of the tonsils. In discussing chronic rheumatism he mentions that the incidence continues, to judge from industrial statistics, at about the same level. The figures from the approved societies show that rheumatic diseases account for about 14 per cent. of total sickness and disablement.

The new cases of tuberculosis coming to the knowledge of the health officers of local authorities have shown, especially in the pulmonary form, a steady decline for many years. The number of deaths from pulmonary tuberculosis rose slightly in 1929, but was below the figure for 1927. The figures for each year since 1847 show a remarkable consistency of diminution. The following table indicates the death rate for tuberculosis of the respiratory system per million living, the figures being taken at intervals of ten years.

1847	...	...	3,189	1897	...	...	1,356
1857	...	...	2,690	1907	...	...	1,125
1867	...	...	2,653	1917	...	...	1,085
1877	...	...	2,184	1927	...	...	744
1887	...	...	1,685	1929	...	...	738

Several pages of the report are devoted to a discussion of the place of the village settlement in a tuberculosis scheme. Sir George Newman regards the village settlement as a highly important experiment in connexion with the problem of after-care.

The number of treatment centres for venereal disease at the end of last year was 178 in England and 10 in Wales. The cases of syphilis dealt with at the centres showed a decline in numbers, but the number of cases of gonorrhoea was higher than it has ever been. It is deduced, however, that the figure for gonorrhoea indicates not a real increase, but the greater use of the centres by persons suffering from that disease. The low ratio of gonorrhoea to syphilis in females (1.18 to 1) as compared with males (2.76 to 1) suggests the probability that a large proportion of women with gonorrhoea remain untreated.

The Cancer Problem.

The recorded deaths from cancer per million of population again showed a rise in 1929, the figure being 1,437 as compared with 1,425 in 1928. The rate is higher than in any previous year, and is, roughly, double that which obtained thirty-five or forty years ago. In males, to judge from the death certificates, the most frequent site is the stomach; in females, the breast. There is a declining incidence among males of cancer of the tongue and jaw, and in view of the possibility that a proportion of cancers of the tongue originated in old syphilitic lesions, it would be reasonable to attribute this improvement to the higher curability of syphilis. The mortality from cancer of the uterus has been falling for some years past, possibly owing to improvements in the care of women during and after childbirth, whereby local effects on the cervix which are the precursor of cervical cancer have been diminished. From a study of the sex incidence, it would appear that whereas in 1851–55 the susceptibilty of females to cancer was more than double that of males, in 1921–25 the susceptibility of the sexes was approximately equal. From certain other facts set out in the Registrar-General's report Sir George Newman draws the general conclusion that previous local disease or injury is a more important factor in the causation of cancer than susceptibility; the resistance varies with the organ concerned, remaining steady in some sites, increasing or decreasing in others, varying with the sexes, and probably also with age. Sir George Newman points out that under the powers conferred upon local authorities by the Local Government Act, many of these bodies will be called upon to provide treatment for the sick poor of their districts. As the sick poor include a large proportion of cancer cases, an opportunity of education in preventive treatment will be afforded.

"Cancer Cures."

With regard to non-professional, amateur, or "quack" remedies for cancer, to which public notice has lately been drawn, Sir George Newman states the conditions which must be met before it can be stated that one method is superior to another: the number of cases must be large enough to avoid errors due to chance; there must be no reasonable doubt that the cases were cancerous; and the proportion of three-year or five-year "cures" must be definitely greater after one method than after the other. Unless these conditions are fully satisfied, no new method of treatment is likely to meet with the general acceptance of the medical profession. In matters of this sort, the members of the profession are their own severest critics, and the scepticism with which they receive accounts of vaunted "cures" for cancer should be attributed to their conviction that such "cures" must pass tests similar to those which experience has shown to be essential. Another necessary step in testing the value of a new method is that such an account of it must be given to the world as will permit of claims made on its behalf being confirmed or controverted. Experience has shown, Sir George Newman says dryly, that the reaction of the professed "cancer curer" to such a condition is a certain reserve; he is not too anxious, as a rule, to obtrude himself or to submit his methods to the scrutiny of an investigatory committee. The main feature of his trade is that his remedy is a secret one, known only to himself. It is not contended that the "cancer curer" never treats the cancerous condition, nor that he never cures some diseased conditions; it is also possible that he cures some superficial cancers if he uses caustic applications. But the medical profession knows that removal can be effected more quickly by some surgical method, also with less disfigurement, and usually with less pain.

"One may believe that the cancer curer is merely ignorant; it seems probable that he is more often a charlatan trading on the facts that some cancers are difficult to diagnose, that the preparations he uses sometimes lead to healing of the local disease, and that, on the part of the public, fear of the disease, ignorance of the true state of affairs, and the secrecy with which the treatment is enshrouded all combine to make them ready victims. . . . One may rest assured that if and when some form of treatment for cancer is found which gives results superior to those being obtained by members of the medical profession, it will be quite unnecessary to take special steps to give it the prominence it will deserve; its virtues will ensure its full recognition."

Nothing could be further from the truth than that any professional jealousy enters into the matter or any unwillingness to consider suggestions emanating from outside the bounds of the medical profession.

Sir George Newman concludes his remarks on cancer with a reference to the place of radiotherapy. While it cannot be said that efforts during the past year to improve the nation's resources in respect of radium treatment of cancer have been unfruitful, two important points should not be allowed to escape notice: (1) the need for fostering a parallel development of *x*-ray therapy with radium therapy, and (2) the practicability of pooling resources for radiotherapy in those hospitals which have such small amounts of radium as to lead to inadequacy of scope and use.

Public Health Activities and Special Investigations.

A large section of the report is devoted to food and nutrition. In the elucidation of the problems of nutrition, progress continues to be recorded, but as fresh knowledge

accumulates the complexity of the subject becomes increasingly manifest. Some suggestive work by Professor Mellanby gives ground for believing that vitamin A may have an important function in the prevention of infection, and steps are now being taken to test that hypothesis on a large scale.

A few sporadic outbreaks of food poisoning occurred during the year, but all were of the usual type. The "toxin" type of food poisoning associated with canned or cooked food in which no living bacteria are to be found is no longer of common occurrence. Only three outbreaks could be reasonably ascribed to this form of food; in all three, canned veal from one particular foreign factory was suspected. Only one outbreak was observed as due to ice-cream. An interesting outbreak, due to milk, occurred in an elementary school; the milk was certainly highly contaminated with bacteria of the *B. coli* group, but no pathogenic bacillus was isolated.

Sir George Newman describes the many activities of the intelligence division of the Ministry, the work of the Ministry's pathological laboratory, the work carried out by medical officers of the Ministry under the Therapeutic Substances Act, and special and auxiliary investigations on port sanitation and other matters. In international health he shows that British research and experience have made useful contributions. During the past year one of the Ministry's highly placed officers has been sent to Australia to advise on the establishment of a maternity and child welfare division in the Commonwealth Department of Health, and another to the Governments of Kenya and Uganda to advise as to measures to be taken to combat malaria.

The Education of the People.

In conclusion, Sir George Newman remarks that the relatively sound condition of the health of the English people at the present time should afford them both encouragement and gratification. It is largely due to the steady progress which has taken place within the last two generations in their social life and habit. Alongside an advanced and progressive policy of health reform on the part of the legislature, there has been steady progress in the administration of public health measures, as well as profound social changes. For the masses of the people the hours of leisure have been extended, housing, clothing, and diet have improved, life has been lived more in the open air, and more of its amenities have been enjoyed. The practice of sobriety has come to appeal to their common sense, and they have taken a fuller and more reasonable interest in their own health and function. He points out that the public health services have been a means, not only of providing facilities, but of actually educating the people. The value of the public services must always be conditioned by the state of public education.

On one matter, perhaps, the enthusiasm of Sir George Newman has led him to bestow praise which he might well have qualified. He points to the newspaper press, with its millions of readers, as one of the most effective means of educating the people in the importance of health. Newspapers, he says, constitute one of the principal exchanges for the enlargement of the mind of the public, and he continues: "In recent years there has been an enormous extension and development of all classes of newspapers in the presentation, interpretation, and application of our knowledge of the science and art of hygiene. Of its educational value there can be no doubt." It is true that some London and many provincial newspapers maintain a high standard of journalism, but it can hardly be denied that a large section of the "popular" press holds a distorting mirror up to current affairs, in health as in other matters, and often gives information which, if not inaccurate in detail, is false in emphasis. Genuine news is sacrificed to "stunts"; false hopes are continually being raised as regards alleged "cures," and scares are started which alarm the uncritical. It is a question whether the tit-bits of health information given in such fashion do not at time create an ignorance more deplorable than that which they profess to remove.

MEDICAL HYDROLOGY IN PORTUGAL.

The annual meeting of the International Society of Medical Hydrology was held this year in Portugal from October 15th to 23rd, under the presidency of Dr. Belo Moraes, professor of clinical medicine at the University of Lisbon. The society met in conjunction with the older organization interested in hydrology—namely, the Triennial Congress, founded at Biarritz in 1886, and now under the presidency of Professor Egas Moniz. Nearly three hundred medical practitioners, from most of the European countries, took part in the proceedings.

The congress and the society were received at the Academy of Sciences by the Prime Minister, Senhor Domingo Oliveira and Senhor Cordeira Ramos, Minister of Education. In responding for the society, Dr. Fortescue Fox said that in all countries the same problem was encountered; the use of waters and baths for invalids was everywhere on the increase, but the principles of hydrology were little understood. Professor Egas Moniz announced that systematic lectures in hydrology now formed a part of medical teaching in Lisbon.

Treatment of Digestive Disorders.

The subject of the society's discussion was the treatment of digestive disorders by hydrological methods. Dr. Armando Narciso of the Lisbon Institute of Hydrology said that the alkaline waters of Vidago and Salus were employed for acid types of dyspepsia with pain and pyloric spasm, with or without latent ulceration, as well as for many hepatic cases. For atonic or muco-membranous enterocolitis both alkaline and chloride waters were prescribed. Drs. Mazeran and Aine (Châtel-Guyon), discussing chronic affections of the colon, clearly differentiated functional disorders from alterations in the mucous surface and colitis properly so called. In the treatment of these various conditions the writers distinguished: (1) waters acting directly on the colitic process; (2) those that acted upon the abdominal nervous system; and (3) those which acted primarily upon other digestive organs. Among external applications, warm and sedative baths came first and then stimulant carbo-gaseous and saline baths. Cold was carefully avoided; colonic lavage was reserved for exceptional cases, and then was used only in small quantities, *goutte à goutte*. Dr. Fred Kraus spoke from thirty-five years' experience at Carlsbad of the treatment of slight jaundice, hepatic engorgement, early cirrhosis, and the various cholecystopathies. All these types of subacute or chronic digestive disorder derived benefit from alkaline sulphated waters, often combined with packs of hot peat; 60 to 70 per cent. of his cases were relieved of all symptoms by such means. In affections of the gall-bladder and bile-ducts they were the best alternative to surgical treatment, and were also often very useful after operations. Dr. Zoltán Rausch (Budapest) considered that hydrological treatment was becoming more precise from the new knowledge of liver functions. Thermal sulphated waters appeared to favour the excretion of bile in hepatic engorgement and abdominal plethora, but further investigation was required. Dr. Michael Foster dealt with the use of British waters in disorders of the digestive tract. Experiment had shown that the old sulphur springs at Harrogate produced an increased flow of bile. Such waters, with hot liver packs, gave good results in chronic congestion and slight enlargement of the liver, while the milder saline waters of Leamington and Llandrindod were indicated for other forms of hepatism. Many tropical cases, for which a temperate climate was no real cure, obtained rapid relief from British sulphur or saline waters. Dr. Paul Weiss advocated the more general use of waters for the digestive disorders of children. Chloride waters, especially those containing calcium, were, if judiciously used, of much service, and led to marked increase of weight, as had been shown in the home for children at Homburg. Such springs provided the material for building up new cells, and regulated the water balance; they also diminished vagus tone and irritability of the central nervous system. Children were often more successfully treated at the spas

by waters, with careful dieting, than at the seaside resorts, where dieting was too often neglected.

A paper by Professor Vinaj (Andorno) dealt with the external treatment of gastric and duodenal disorders by hydrotherapy. Thermal and mechanical applications (sponging, ablution, half-baths, friction baths, and douches) might be, according to their temperature and technique, either stimulant or sedative and analgesic. When judiciously employed the results were excellent, but long experience and judgement were indispensable, since one error in technique might upset the whole course of treatment. Dr. Fox, like Dr. Mazeran, emphasized the importance of studying the "chronic disorders of transit or traffic" in the digestive canal, for which only gentle treatment ought to be prescribed. Both "aperient" waters and large injections, when repeatedly given, were irritating and injurious, and the *coup de mucus* should be regarded as a danger signal.

General Business.

The society's international standards measurements committee (chairman, Dr. S. Judd Lewis) presented a draft register, which had been under preparation for three years; it suggested an agreed system for recording the composition and qualities of the medicinal waters of all countries; also a provisional classification. This was adopted by the society, subject to certain amendments. The society's committee on social hydrology (arrangements for the treatment of insured patients and their families) considered proposals from Germany (Dr. Hirsch) and from France (Dr. Durand-Fardel). The report will be laid before the proper authorities in all countries. The committee on the protection of spas was reappointed.

Among the more important papers presented to the hydrology section of the international congress of hydrology, climatology, and medical geology were an account of the variations in the blood during spa treatment (Professor Sarmento and others); experiments on the action of waters upon spasm of unstriated muscle (Professor Villaret and Drs. Justin Besançon and Cascão de Anciães); the use of various waters in syphilis (Professor Brito and Dr. Pierret); and a discussion by Drs. George Baudoin and Piéry of the physiological and therapeutic effects of the physical factors in climates.

After the meetings at the Faculty of Medicine, the delegates paid a short visit to the spas and health resorts of Portugal, including the marine health resort and thermal establishment at Estoril, the beautiful hill station at Cintra, and the spas of Curia, Luso, Busaco, and Vidago.

MALARIA IN THE NORTHERN ADRIATIC.

A Clinical and Epidemiological Study.

Some provocative questions about the transmission of malaria are asked by an Italian physician, Giuseppi Corradini, who has been in practice for thirty-five years in Rovigno, on the east coast of the Adriatic, twenty miles north of Pola. He contributes to the September issue of the *Archiv für Schiffs- und Tropen-Hygiene* a clinical and epidemiological statement of his experiences there since he was appointed district medical officer in 1895. For the first fifteen years he was concerned with treatment as well as with administration, seeing about three-quarters of the malarial patients, who in one year might number a dozen and in another 300; the case incidence seemed to be independent of the degree of prevalence of mosquitos.

About 3 per cent. of the cases were of the quartan type, the remainder being tropical or tertian. Rovigno, a town of 12,000 inhabitants, lies at the foot of a sloping tract of dry, chalky soil, where there are no swamps, springs, or permanent streams, but only rain-water lakes and ponds in which mosquitos lay their eggs. Viticulture is the chief industry, but the rural slopes are almost uninhabited, since malaria in the past ruined the farms. The peasants retreated therefore to the town, for they knew that only during daylight were they safe on the farms. They are but little attacked now, more lightly than in most malarial places. Few townsmen were attacked, for the town was surrounded by cattle sheds, which provided a protective screen, since mosquitos prefer the blood of cattle to that of man. Early in 1915 the inhabitants were evacuated to Pola; all but 400 (among these 25 peasant families), and all the cattle were commandeered and removed. A fortnight later the still remaining peasants were ordered to reside in the rural area in tents; in August an epidemic of malaria compelled their return to the town, now severely attacked since it had been deprived of its protecting cattle.

The three classical types of malaria occur in Rovigno now, but all are mild and amenable to quinine. The *P. falciparum* infection is notably milder than elsewhere, and causes no swelling of the spleen or initial rigor. There is also a quotidian form, not a double infection, but exceptionally mild; its parasite, *P. immaculatum*, is, according to Dr. Corradini, smaller, more delicate, and much more numerous in the blood. In 1907 he found it in 38 of 51 "tropical" cases. Pernicious *falciparum* infections hardly ever occur. This persistent harmlessness is curious, because every year 800 workers came to Rovigno from Apulia (where malaria is really malignant) for the brandy-distilling season in September; yet the local mosquitos never seemed to become infected with the graver forms of malaria. Indeed, severe cases were quite uncommon until 1915, when the railway watchmen, who were continuously exposed at night, began to suffer; they were all local men, so no new infection of the mosquitos could be alleged, and there was as yet no food shortage. Since the war the cases have again become slight. The author defines two chief malarial seasons: the spring (March–May) and the summer–autumn (August–October). The spring cases were tertian, including each year a quarter of those who in the previous year had had malignant tertian, and were relapsing, always with benign tertian. He thinks it impossible that in all these cases he had missed mixed infections; he is sure his examinations (always a deep drop and two films) were too careful for that. The cases continued to show *P. falciparum* until apparent cure; after three or four months of recovery the patients became ill again, now with *P. vivax* in their blood. The spring cases are, Dr. Corradini believes, either relapses due to altered parasites, or infections dating back to the previous year with delayed incubation. Tertian infection never changes into the tropical form, but may perhaps, he suggests, change into the quartan.

The autumn epidemic commences suddenly and rapidly rises to a peak, sometimes almost as rapidly as influenza. Why is there such delay in incubation? The author has tried in June and July to find parasites in patients of the previous year, but always without success. Whence did the mosquitos receive their infection? In Rovigno there was little malarial infection, since the mosquitos could not get into contact with patients; how, then, did the mosquitos maintain their infectiveness? He deduces that there must be some other intermediate host for the malarial parasite besides man. At Rovigno in 1915 a hundred healthy persons were turned on to the land in early June and remained well until early August, when within a few days most of them were attacked. The reports from the Roman Campagna are said to be similar, and Dr. Corradini concludes that the mosquito-infecting role of the human carrier is too much stressed at present. He notes the care everywhere taken after the war to prevent the infecting of the anopheles mosquitos of Northern Europe by patients returning from malarious districts; the precautions were successful everywhere, and no epidemic occurred, but he doubts whether the precautions adopted were responsible for this. Finally, the author discusses the possibility of infection arising from latent malaria of old standing; he has been shown such cases, but has never diagnosed one himself. So long, he remarks, as plasmodia, pigment, monocytosis, basophile stippling, and polychromasia are absent from the blood the mere abolition of the symptoms by quinine is an insufficient ground for making a diagnosis of malaria.

His ultimate conclusions are three: (1) there is no spring tertian, but only relapses or prolonged incubations from the previous year; (2) there is but one malarial parasite, with various forms; and (3) there is an intermediate host for the malarial parasite other than man. It follows, he adds, that systematic malarial campaigns must be concentrated on the mosquito if success is to be achieved.

Scotland.

Treatment of Scottish Blind.

A report of the proceedings of the Scottish Advisory Committee on the Welfare of the Blind to the Department of Health for Scotland, covering the years 1928 and 1929, has just been issued. The committee reviews the various arrangements that have been made by county councils in different parts of Scotland for the welfare of the blind, and criticizes the schemes which have been drawn up for the payment of grants towards setting up blind persons in business or employment. It is pointed out that the grants paid by the Department of Health towards services for the blind in 1927–28 amounted to approximately £18,000; that £53,000 was contributed during the year by local authorities to voluntary associations helping the blind, and that the total subscriptions, donations, and legacies received by voluntary associations in the year amounted to £37,681. According to the investigations of the committee the number of blind persons undergoing a course of technical education increased from 150 in 1921 to 386 in 1928, while the number of trained blind workers in institutions rose from 608 to 694 in the same period. The number of untrained blind persons stated to be capable and willing to undergo training in 1928 was only 135. Among the recommendations made by the committee is that in the administration of their schemes local authorities should in every case utilize the experience of those who work among the blind, and that they should take steps to provide adequate accommodation for aged and infirm blind persons who are not otherwise properly cared for. Contributions of local authorities towards the funds of voluntary associations should be on a per capita basis, on the lines on which grants are paid by the department. Every local authority should satisfy itself of the adequacy and efficiency of arrangements made in its area for the medical certification of blind persons. Further, no blind person should require to have recourse to the Poor Law for assistance, and in the absence of complete State provision for the maintenance of blind persons, local authorities should augment their incomes to 25s. per week, with safeguards against the refusal to work or be trained. A State compensation allowance, amounting to £1 per week for all blind persons over the age of 18 whose annual income does not exceed £105, is recommended. This graduated allowance would cease if the blind person's means amounted to £200 per annum. It is estimated that the annual cost to the State of a compensation allowance on this scale would be about £450,000 for Scotland. The net cost to the State, however, after allowing for the present expenditure of £120,000 on pensions to the blind under the Blind Persons Act and the Old Age Pensions Acts, would be £330,000. The committee states that the institutional side of blind welfare work has been so well developed that the facilities for technical education and workshop employment of blind persons in Scotland are greater than in any other country. At the same time, it does not consider that the same high standard has been reached in ensuring the welfare of blind persons who are not suitable for institutional treatment. The report states that over £1,000,000 has been expended by the State, local authorities, and education authorities in the past eight years on the welfare of the blind. The number of blind persons registered by the Department of Health for Scotland, as on April 1st, 1929, was 8,518—an increase of over 100 per cent. in the past ten years, and equivalent to a rate of 1.7 per 1,000 of the population. Of the registered blind, 69 per cent. are recorded as unemployable. The main cause of the increase in the number on the register is thought to be the more complete registration of blind old age pensioners; it is considered that a stricter and more uniform standard of certification of blindness is desirable. In the past ten years the number of blind infants under 5 years of age has been reduced by 71 per cent., the decrease in the number of children between the ages of 5 and 16 being 16 per cent. These figures confirm the beneficial effect of the measures carried out by local authorities for the prevention and treatment of ophthalmia neonatorum and similar diseases. The report is published by H.M. Stationery Office, George Street, Edinburgh, price 9d. net.

Future of the Family Doctor.

Dr. Charles Forbes delivered his presidential address before the Aberdeen Medico-Chirurgical Society on October 30th, taking as his theme the place of the family doctor in the supply of an adequate medical service for the wage-earning and poorer classes in the Aberdeen region and the North of Scotland. He made a brief survey of the growth and development of the public medical services, dealing particularly with the Poor Law, dispensary, public health, and compulsory insurance services. He directed his remarks mainly to the members in general practice, impressing upon them the seriousness of the present situation in Scotland, and outlining what he considered to be their position in relation to the preventive-curative work carried on through the public health clinics and the dispensary. The public demand was insistent for an adequate service. He saw only two ways of meeting this demand, either by an extension of the services given through the public clinics to include domiciliary treatment of the families, or by an extension of the existing insurance services to include the wives and dependants of insured persons and allied classes. Dr. Forbes urged his fellow practitioners to fight for the acceptance of the policy of the organized medical profession, both for the benefit of the common folk and for the future of general practice in this country.

The Health of Workers.

Under the auspices of the Department of Social Study and Training of the University of Edinburgh, an address was delivered on November 4th by Lieut.-Colonel Sir Arnold Wilson on the promotion of health in industry. Principal Sir Thomas Holland, who presided, remarked that the knowledge and conditions affecting good work had improved very greatly since the war. Sir Arnold said that Great Britain had been the first country to promote factory legislation, but the solid advances that had been made had seldom originated in political programmes. Progress had been achieved almost entirely as the result of the study and systematic work of factory inspectors and medical officers, and the promotion of health in industry had largely depended on medical research. One of the most successful methods of reducing industrial fatigue was to study the movements of the worker. This study had originated in America, where it was carried on by engineers with the object of increasing output. The most economical movements had been standardized in regard to time, and output of work had consequently been increased; this increase, however, was due mainly to increased speed and not to real lessening of fatigue, and such methods had aroused resentment among the workers. The problem in this country had been approached from a different angle by psychologists, not by engineers, and principles which were more fundamental had been discovered in relation to economy of movement. The methods devised had been to make the movements fit into the natural rhythm of the worker. Rest pauses in working periods had been introduced into various occupations with great success. The incidence of accidents had also been studied in relation to hours of work and atmospheric conditions. The question of the proper length of the working day was constantly being examined. Long hours of work were found to be uneconomical, because they caused undue fatigue and lowered the hourly output. On the other hand, the shorter working day enforced in collieries had had the effect of reducing the total output, and no amount of speeding up could compensate for hours shortened beyond a certain point. Further, short hours and high speeds tended to penalize older workers, who could perform tasks more comfortably when spread over a longer period. Short hours often meant that expensive machinery was out of use for long periods, and this led to demands for double shifts, which disorganized domestic arrangements. They were now entering upon a new economic era. This country had a tradition of loyalty, fair dealing, and craftsmanship, and the chief concern of those whose business it was to promote health in industry

was to emphasize the importance of the human factor. Psychology was a young science, but it was based on sound principles, and its application to industry would do more to refashion civilization than any Acts of Parliament.

Medicines, Old and New.

A lecture on medicines, old and new, was delivered under the Combe Trust in Edinburgh, on November 5th, by Dr. John M. Bowie. Lord Sands, who presided, remarked that in older days he thought that there was more knowledge of medicine in the household than at the present day. Dr. Bowie said that the earliest medical records were found in Egypt and dated about 4000 B.C. Medicine at that time depended mainly on the theory that disease was possession by an evil spirit, and the practice of healing consisted largely of means directed towards exorcism. Later, these oral rites were accompanied by manual rites, such as that of tying a knot seven times; later still, the manual rites developed into giving the patient some substance, often of an obnoxious nature, to hasten the departure of the spirit. In time, by a process of exclusion, some of these substances were found to be of real value, and thus the profession of medicine and the use of medicines to cure disease had arisen. About 30 per cent. of the drugs in the present pharmacopoeia were known to these later Egyptian physicians, including such substances as castor oil, dill, turpentine, and myrrh. Greek medicine from the sixth century B.C. to the second century A.D. had left a legacy of clinical observations. The Greeks had a strong belief in the healing power of nature. After a period of suspended animation in medicine, which lasted till the sixteenth century, the medical schools arose, and from that time medicine had steadily developed. The present age of medicine might be said to have begun in the middle of the eighteenth century, when the idea of prevention came into being to combat the epidemics and the high infantile mortality which was then brought about by the overcrowding of the towns during the industrial revolution. The present era of scientific subdivision or specialism began in the early part of last century, and since then biochemists had given us the endocrine extracts, and bacteriologists the vaccines, but it was well to remember that new remedial agents such as *x* rays, ultra-violet rays, radium, and so on, were only in their infancy, and the statements of miraculous powers sometimes attributed to them should be treated with due reserve. The other measures prescribed by the doctor were usually of more importance than medicines, although fashions in medicine would probably tend in the future, as in the past, to hinder rather than to help the progress of the healing art.

Education of the Deaf.

The Educational Endowments (Scotland) Commission has drawn up a scheme under the Educational Endowments (Scotland) Act, 1928, for the amalgamation of Donaldson's Hospital, Edinburgh, and the Edinburgh Royal Institution for the Education of Deaf and Dumb Children, with a view to the better education of the deaf. The former of these institutions was inaugurated in 1845, and the latter in 1816. The Commission proposes to establish a governing board of twenty-three persons, to be elected by various bodies, in order to administer the united institution and its property. At present half of the children at Donaldson's Hospital are deaf and dumb, while the others are normal but necessitous children. The scheme directs that the education of normal children shall in future be discontinued, all the resources of the two institutions being devoted to the education of the deaf and dumb. A school is to be set up in Donaldson's Hospital, to be known as Donaldson's Royal Edinburgh School for the Deaf, and boarding-houses for the children are to be established as they may be found necessary. When the boarding-houses are ready the buildings of Donaldson's Hospital will cease to be used for residence, and will be devoted entirely to the purposes of the school. Arrangements are to be made for the provision of a nursery school department, a department for general education, and a department for vocational training. Children will receive a general education up to the age of 16 years, and education of a vocational type from 16 to 19. Parents or guardians, and town and county councils and other public bodies, may arrange for the education of their deaf and dumb children at the school on payment of fees. Arrangements are also proposed to make the school available as a clinic in the event of a course on education of the deaf being instituted in the University of Edinburgh. Copies of the draft scheme may be obtained from H.M. Stationery Office, 120, George Street, Edinburgh, at the price of 5d.

Royal Medical Society of Edinburgh.

An address on the prevention of cancer was delivered to the Royal Medical Society of Edinburgh on October 24th by Mr. W. Sampson Handley, surgeon to the Middlesex Hospital. He said that one person in every seven who reached the age of 30 ultimately died of cancer, so that the subject was of immediate public interest. Cancer starting in accessible positions might be regarded as a local and curable disease if detected at an early stage, and even if the patient sought advice too late for cure, much could be done nowadays to delay the fatal issue by radium treatment and other methods. In the last half-century the average duration of life had increased by ten years; this fact might be associated with the higher mortality from cancer, occurring to a large extent in people who, but for the development of medical knowledge, would have died in youth. The Middlesex Hospital had issued a series of health leaflets for the instruction of the public in health matters, and several of these dealt with cancer. The routine medical inspection of middle-aged persons at regular intervals would in many cases lead to the detection of early cancer while it was still curable; he considered that this was the best practical policy for controlling the disease. The general belief that the cause of cancer was absolutely unknown was no longer true in his opinion, for according to his observations malignant disease occurred only in areas of tissue where the lymphatic vessels had been blocked by previous local disease; cancer could be almost abolished if it were possible to prevent chronic inflammation of the lymphatic vessels.

England and Wales.

Halley Stewart Lectures.

The Halley Stewart trustees invited Sir George Newman to deliver their course of lectures this year, and he chose as his subject, "Health and social evolution"; the opening lecture, on "How England learned to control disease," was devoted to a consideration of the social structure of England in the Middle Ages and its relation to modern institutions, particularly those concerned with health. The manor estate and its justiciary courts, the monastery as the local centre of learning and institutional religion, and the guild as representing industry were discussed, and it was shown that their joint services were the beginning of co-operation, national tradition, self-government, and public service, including health services. Upon this social structure the Black Death broke in 1349, not only disorganizing it, but so changing it as to destroy half the population, redistributing poverty and wealth, changing the course of agriculture, and affecting wages, rents, taxes, and tenure. It also domesticated foreign pestilence on home soil, and so resulted the first organized attempts at preventive medicine. The lecturer then discussed medical practice in England from the time of the Conquest to the end of the eighteenth century, and showed the part played in England by the doctors and by the reformers of the Renaissance, including Sir Thomas More. Finally, the lecturer touched on the rise of individualism and humanitarianism in the eighteenth century. In the second lecture, entitled "Health problems of the modern period," Sir George Newman discussed the nature of man and its relation to nurture, environment, and ignorance, going on to show the changes in the incidence of disease between the two periods before and after the eighteenth century, the former being marked by famine, pestilence, plague, and ignorance, and the latter by a group of deficiency diseases,

infections, and impairments. There was one new enemy—namely, the vast increase in population. Up to the end of the seventeenth century the population never rose beyond about 8 millions, but in the nineteenth century it rose to 32 millions, which had since increased to 38 or 39 millions. The lecturer considered that from a health point of view the industrial revolution formed the Great Divide between the old England and the new England, between a rural England and an urbanized England, and between a small and scattered population and a large dense one. The industrial revolution not only led to increase of population, and to its redistribution, but also to new housing and factory problems, involving radical dealing with factory reform, housing, and the physical welfare of women and children. The modern period was also marked by the coming of democracy, and a new spirit which manifested itself in a demand for municipal reform, increased franchise, co-operative movements of various kinds, utilitarianism, and the creation of a vocal public opinion and an insistent demand for the application of social medicine.

Reconstruction at Great Ormond Street.

It has been determined to proceed at once with a scheme, long overdue, for the reconstruction and modernizing of the Hospital for Sick Children, Great Ormond Street. The hospital was founded nearly eighty years ago, and has been enlarged three times by piecemeal additions. It began as an affair of ten beds in a house which even then was old, having been the house of Richard Mead, the eighteenth century physician. It is interesting to recall that one of the sponsors of Great Ormond Street was Charles Dickens, who lived at that time at Tavistock House, less than half a mile away, the site of which is now occupied by the headquarters of the British Medical Association. The idea of a children's hospital appealed to Dickens's fervent imagination and love of children; he described the hospital in *Our Mutual Friend*, and spoke in public on its behalf. The hospital has now grown to 252 beds (with 45 at the branch hospital at Tadworth), and it is claimed that its beneficent work as the prototype of children's hospitals throughout the world has resulted in the restoration to health and happiness of more than a million and a half little children. Although aware that other hospitals are making similar appeals, the board of management, with Lord Macmillan in its chair, has decided that matters cannot wait any longer, but that the hospital must proceed at once to remedy by a comprehensive scheme the present state of congestion, which is detrimental to the full efficiency of its work. The Prince of Wales, who is president of the hospital, has commended the project and the necessary appeal, and is attending a meeting at the hospital on November 19th with the object of furthering it.

Medical Women's Federation.

The half-yearly meeting of the council of the Medical Women's Federation was held on October 31st and November 1st at the London (Royal Free Hospital) School of Medicine for Women, with the president, Miss Martindale, in the chair. Among matters discussed was the need for the appointment of more women doctors on the staffs of mental hospitals, women patients being in a preponderance. Some discussion took place on the question of the sterilization of mental defectives. Dr. Doris Odlum presented an interesting report on the Mental Hygiene Congress recently held at Washington, which she attended as a delegate from the Federation. A discussion took place on birth control and the possibility of obtaining exact information thereon. Satisfaction was expressed at the lifting of the ban on the admission of women medical students to King's College Medical School, London. It was hoped that other medical schools would follow the good example. Considerable discussion ensued on the need of facilities for medical women to obtain post-graduate instruction in medicine and surgery and special subjects in London, these specialized courses being necessary for the obtaining of the higher qualifications, such as F.R.C.S. and M.R.C.P. It was realized that the facilities for post-graduate study provided for men were often inadequate and restricted, but it was felt that an effort should be made to secure that when courses were arranged they should, as far as possible, be available to men and women alike. The London Association presented its report on dysmenorrhoea, an analysis of some 6,000 cases. This investigation, which had taken five years to complete, was welcomed as a fine piece of exact scientific work. Dr. Helen Chambers gave an interesting account of the work done at the Marie Curie Hospital as exemplifying what could be achieved by the organized efforts of medical women working on one definite method at one aspect of the cancer problem. It was announced that a new unit had been started in Edinburgh to link up the work of medical women in Scotland, guided by the experience of the workers at the Marie Curie Hospital. Dr. Helen Chambers suggested that, in order to extend this work in England, other units staffed by medical women might be linked up with the Marie Curie Hospital by means of a travelling radium specialist.

New Turkish Baths at Eastbourne.

Dr. R. Fortescue Fox opened the new Turkish baths at Eastbourne on November 7th. The total cost of reconstruction and of introducing new equipment has been over £9,000; the new building includes a cooling room, three hot rooms, a massage room, a plunge bath, two vapour baths, and a Russian bath. Dr. Fortescue Fox emphasized the importance of spreading information about the curative properties of the seaside. He believed that in future the sea would play a more prominent part in therapeutics. Coastal health resorts should utilize all their natural resources, and should introduce the various artificial procedures which were now being devised, since in such a variable climate as that of England heat treatment would always have its part to play. Some forms of hot vapour baths had been used in northern climes for several hundred years, and it was only in England that this method of treatment had somewhat fallen into disuse in the past. It had been revived here about one hundred years ago, and was now recognized as one of the most important ways of treating rheumatism.

Correspondence.

DRAINAGE IN PLEURAL EFFUSIONS.

SIR,—May I, as one of the surgeons so gently prodded by Dr. R. A. Young in his most instructive paper on the medical aspects of thoracic surgery (*Journal*, November 8th, p. 763), proceed in return to cavil at one of his paragraphs? It is that one in which he mentions the report of the American Empyema Commission, and then goes on to state that a streptococcal pleural effusion should never be drained till frank pus is present. Surely the moral of that report was that the indication for open drainage should be the state of the patient rather than that of the effusion; the crucial point was not whether the fluid was thick or clear, but whether the lungs had recovered sufficiently from the original pneumonia to stand the interference with their action caused by a free airway into the pleural cavity. On the other hand, I do not see why any patient should be better off with streptococcal fluid in his chest than without it, provided that it can be removed without upsetting him by means of a needle or a "closed drainage" tube.

However, on considering that "syn-pneumonic" empyemas are usually streptococcal, that streptococcal effusions usually remain clear in their early stages when they are likely to coexist with a pneumonia, and that operations on them in this country usually involve the resection of a rib under general anaesthesia, I must admit that Dr. Young's warning comes to much the same thing in the end. I must also admit that the trouble with the closed drainage methods comes later, but that is another story.—I am, etc.,

London, W.1, Nov. 8th. DENIS BROWNE.

TEMPORARY TREATMENT WITHOUT CERTIFICATION.

Sir,—The new Mental Treatment Act comes into operation on January 1st, 1931, and, as is now well known, one of the most important provisions it contains is that relating to the temporary treatment of patients without certification. It has, I think, been generally accepted that the intention of the promoters of the Act was to enable treatment of early and recoverable cases of mental illness to be obtainable without recourse to a justice's order. The main section of the Act dealing with this provision states that, in addition to the fact that the patient must be suffering from a mental illness and be likely to benefit by temporary treatment, he must also be "incapable of expressing himself as willing or unwilling to receive such treatment." Now does this mean what it says? If, for example, a patient, otherwise suitable, says that he is unwilling to enter an institution for treatment, as most are likely to do, does it mean that this patient must be certified? Or is the section meant to imply that, even though the patient expresses his unwillingness to receive treatment, the doctor is entitled to decide and base his recommendation on whether the patient understands what he is doing at the time? If so, the section is very badly worded, and is likely to lead to much confusion in practice. An authoritative ruling on the point is urgently desirable.—I am, etc.,

London, W.1, Nov. 7th. Frederick Dillon.

THE CRADLE OF ANTISEPTIC SURGERY.

Sir,—In a recent issue of your valuable *Journal* I noticed a slight error, which I think should be corrected. It was to the effect that the antiseptic methods of surgery first made their appearance in the Edinburgh Royal Infirmary. I yield to nobody in my respect for the Edinburgh School. It is one of the best schools in the world, and for a very long time has maintained its high reputation combined with excellent work.

At the same time Lord Lister was not in Edinburgh when he first began modern surgery. He was a London man, and he came to Scotland for the purpose of studying Edinburgh surgery, particularly with Syme, whose daughter at a later period became Lord Lister's wife. There was a vacancy in the chair of surgery in Glasgow in the early sixties of last century, for which vacancy Lister successfully applied. He got wards in the Glasgow Royal Infirmary, and first introduced antiseptic surgery into these wards. Lord Lister was a very highly cultured man, and intensely sympathetic, and he was appalled at the number of deaths which took place in his wards.

He brought the matter very prominently before Dr. Anderson, who at that time was professor of chemistry in the University of Glasgow; although he was professor of chemistry Dr. Anderson had a medical qualification, and was a widely read, highly cultured man. It was he who pointed out to Lister Pasteur's researches on the effects of micro-organic action. Dr. Anderson suggested that probably that was the cause of the high death rate, and to him also was due the suggestion that carbolic acid might prove the remedy for the trouble. Dr. Anderson, being professor of chemistry, had no wards and no practice whatsoever, but Lister at once put the matter to the test and found that his colleague Anderson was quite correct. Some of the apparatus which was used in the Royal Infirmary of Glasgow, such as the carbolic spray, was in existence only a few years ago, and so far as I know may be in existence yet.

Nothing more unfortunate could possibly have occurred than the destruction of the Lister ward. As recently pointed out by myself in the columns of the *British Medical Journal*, the whole of the directors of the Glasgow Royal Infirmary were not on the side of "the Huns"; a third of those who were at the meeting which determined the disaster were anti-Huns, and at the last meeting I had the honour of leading the forlorn hope.

It may be mentioned that probably the first place in the United Kingdom, if not in Europe, where the change from antiseptic surgery to that modification of it generally called aseptic surgery took place was the Royal Infirmary of Glasgow, and the surgeon who made that change was William Macewen.

No person acquainted with the facts has the slightest wish to lessen the glory of the Edinburgh School or to disparage it, but at the same time, although it has probably done more than any other school in Scotland to advance medicine, still, when valuable contributions have been made in other schools, I think the facts should be accurately stated.—I am, etc.,

Rothesay, Nov. 3rd. Freeland Fergus.

IONIZATION IN ULCERATIVE COLITIS.

Sir,—The letter of Dr. Curtis Webb in your issue of November 1st (p. 757) commenting on my article on this subject, whilst impressing me with my negligence in not searching the literature, enhances the value of my own contribution. In 1905 he writes to the *Lancet* in general terms on "electric enemata," and in 1911 he adduces in support of this nineteen cases of colitis (including mucous colitis) which were all treated successfully with zinc ionization. Had I known of his work I should certainly have made mention of it, and indeed, should not have delayed publication of my own results for so many years—a delay partly arising from doubt as to the efficacy of so simple a treatment in so serious and intractable a disease, and partly from a desire to collect sufficient evidence.

In recent publications and discussions on ulcerative colitis no mention is made of electrical treatment. When I showed my first case in 1924 before the West London Medical Society Mr. Aslett Baldwin confirmed my result from his own experience in dysenteric cases. I did not include any cases of mucous colitis in my series, as the few cases I attempted were unsuccessful. But in the light of Dr. Curtis Webb's work I shall repeat the treatment at the first opportunity. In chronic dysentery, also, I should like to try ionization, but no doubt others with more opportunity will do so.

One other criticism has been made to me, which bears on the very premisses of the matter. Does the ionization act throughout the entire length of the colon, or is the good result due solely to lavage with zinc sulphate? Dr. Curtis Webb answers this as I do, that his first case failed to get relief with silver nitrate lavage until combined with ionization. Dr. Carter Braine has further tested this point for me in a case with a colostomy opening, and has shown that there is some current flowing in the fluid from the colostomy wound. This is a point I must leave to the physicists, for I cannot reckon myself among them. My interest lies in the fact that numerous cases of ulcerative colitis occur especially among women, and these are amenable to ionization.

Finally, I should be grateful to know of the results of more extensive tests of the treatment, which I understand is being tried; for, with increasing experience, one recognizes the limitations of all treatments, and doubts will continue to arise.—I am, etc.,

London, W.1, Nov. 4th. Julius Burnford.

PERSONNEL OF A RADIUM CLINIC.

Sir,—I was pleased to see in the *Journal* of November 1st a letter from that doughty champion of the professional radiologist, Dr. Douglas Webster. With him I may sometimes cross swords on minor matters, but always find myself in agreement on main issues. His remarks are of especial value, as he makes it clear that, owing to his having at his disposal six beds at the Middlesex Hospital, he is not suffering under any sense of personal grievance. I think this is very important, as letters which give the impression that the writer is smarting under a sense of injustice to himself seldom carry much weight, even if the arguments contained in them are sound. For this reason I will preface my own remarks by saying that in the hospitals to which I am attached nearly all cases of malignant disease are sent to me within a few days of operation, and, in an increasing number of instances, for a preparatory course before operation is undertaken. Although I have no special beds, I have no difficulty in getting one when I wish, and from time to time I have cases in hospital which are receiving radiation treatment alone. Also, the radium

supply, while of course freely available for surgical use, is under my immediate charge.

Now for a tilt at Mr. Duncan Fitzwilliams and such surgeons as approve his attitude. It is less than ten years since I heard Mr. Fitzwilliams publicly declare at a meeting of the Chelsea Clinical Society that *x* rays and radium should be classed with violet leaves among the quack remedies for cancer of the breast. I must, of course, congratulate him on his conversion so far as radium is concerned, but I am not impressed with his competency to act as a judge with regard to the results of *x*-ray treatment.

As Dr. Webster points out, material for a comparison of the results of *x* rays and those of surgery in early operable cases scarcely exists as yet in this country. Statistics are beginning to be available in breast cancer with regard to surgery alone, and radium treatment alone; but this is only because the latter treatment has been chiefly interstitial, and so has been carried out by the same people who formerly did the radical operation. On the other hand, cases with widespread recurrence are sent to the *x*-ray department; and the extraordinary thing is that most of these patients are kept going in comparative comfort for months, and often for years; and that a few of them may even be regarded as "cured" in that, becoming free from signs and symptoms, they cease to attend in spite of orders, and when subsequently traced years later are found to have remained in good health.

Some of the most remarkable results in modern medicine —to which the overworked adjective "miraculous" might well be applied—are seen in the deep *x*-ray treatment of inoperable cancer of the uterus with invasion of the pelvis. I have myself published two such cases in which patients, admittedly dying, were restored to active life; in one case for ten months, and in the other for a year, during which periods there were no symptoms. Precisely the same arguments which have led to the use of radium alone in cancer of the breast, uterus, and tongue can be employed to advocate deep *x* rays as a substitute for operation in cancer of the cervix. On the Continent such treatment has been extensively carried out, with results at least equal to those of panhysterectomy.

Apart from the opinions of a few people who are of Mr. Fitzwilliams's way of thinking, there is general agreement that *x* rays can powerfully affect for good many forms of cancer. Concerning the value of radium, there is now little dispute; and surgery, of course, has a well-established place. Surely it is most unscientific to be a violent partisan of one form of treatment to the exclusion of one or both of the others. X rays have many inherent advantages; they can be produced in practically unlimited quantities, and thus evenness of distribution can be secured over as wide an area as may seem desirable. They are available in any well-equipped hospital, whereas the radium supply of the world is at present quite inadequate to deal with a tithe of the cases requiring treatment.

On the Continent at the present time there is a strong movement in favour of combining localized interstitial radium treatment with wide external irradiation by *x* rays; and in such matters what the Continent is doing to-day England is pretty sure to be thinking about to-morrow. The older radiologists in this country have been treating cases of malignant disease for over twenty years. We have, each of us, seen more individual cancer patients than the average surgeon, we have seen each patient far more often, and we have seen them at a far worse stage of their disease. Attempts to freeze out radiologists from participation in the treatment of cancer, or even to keep them in a subordinate place, may succeed for a time, but are doomed ultimately to failure.—I am, etc.,

London, W.1, Nov. 2nd. F. HERNAMAN-JOHNSON.

IMMUNIZATION AGAINST TUBERCULOSIS.

SIR,—I am whole-heartedly with Professor Calmette in his desire to immunize every infant against tuberculosis, but I am in complete disagreement with him about his method. In the case of human beings immunization with a live antigen is very undesirable, if there is any alternative, since, while it protects the majority, it is invariably associated with the infection of exceptionally susceptible individuals, and there is always the risk of infection with contaminating microbes.

Professor Calmette is quite wrong in stating that people are not afraid of small-pox vaccination; the very partial state of vaccination in the British Isles demonstrates the contrary. Was there not a disaster with Haffkine's plague prophylactic similar to that in Lübeck, and is there not constantly a percentage of deaths in flocks given Pasteur's anthrax vaccine? Moreover, Pasteur's antirabies method is not free from suspicion of having caused some cases of this disease.

The work of Wright, Leishman, and their co-workers has amply demonstrated the power of dead antigens against such assaulting epidemic infections as the enterics, dysentery, and cholera. In the case of tuberculosis no such high tide of immunity is necessary to protect, since in nature the infection is of relatively slow incubation, and normal resistance overcomes it. A dead antigen can, with very few exceptions, assure this, and there can be no danger of either the development of the injected tubercle bacilli or of contaminating microbes.

Professor Calmette and others seem to forget that he is seeking to prevent against a natural infection, and not against a large infection by virulent microbes injected into the body. In twenty years' work I only know of two cases of members of tuberculous families in which inoculation with my own "H.T.S." was not sufficient to prevent the disease developing. I pray that there may be no further stumbling-blocks in the path of this essential method of prophylaxis.—I am, etc.,

University College, Dublin, Nov. 10th. W. M. CROFTON.

CONGENITAL RADIO-ULNAR SYNOSTOSIS.

SIR,—I am obliged to Mr. David J. Davies for furnishing me with references to two articles on the above subject which had escaped my notice. Your space is too valuable for me to go into their merits, but I should be obliged if you would allow me to clarify one point. Mr. Davies quotes John Fraser as saying that "pronation varies from 90 to 120 degrees," and Mr. Davis takes this to be contrary to my assertion that any degree of rotation (he misquotes me as saying "any degree of pronation") completely precludes the presence of a synostosis. I am quite sure that what Mr. Fraser means is a "*position*" of pronation varying between those angles, and not a "*movement*" of pronation. In my original letter I clearly differentiated between these two by using the words "can be rotated through an angle."

I should very much enjoy seeing Mr. Davies's case, as I think his description and photographs would fit very well a case of congenital dislocation of the head of the radius, but would fit badly a case of congenital radio-ulnar synostosis.—I am, etc.,

Liverpool, Nov. 10th. B. L. MCFARLAND.

Obituary.

WE regret to announce the death of Mr. HUGH DAVIES, which took place at Templecrone, Westcombe Park, Blackheath, on November 5th. Born in February, 1867, Mr. Davies spent his schooldays at Oswestry, after which he proceeded to University College, London, and Guy's Hospital, whence he qualified M.R.C.S. and L.R.C.P. in 1893. After graduating M.B. and B.S.Lond., with honours, and obtaining the gold medal for surgery in his year, he became house-surgeon at Guy's Hospital, and obtained the diploma of F.R.C.S.Eng. in 1896. He settled in private practice at Greenwich and Blackheath, and in 1900 became an honorary surgeon on the staff of the Miller General Hospital, Greenwich, with which he was connected at the time of his death, being then senior surgeon. After extensive experience in general practice, he established himself as a consultant surgeon in Harley Street. In addition to his services to the Miller Hospital, Mr. Hugh Davies was also consulting surgeon to Camberwell House, Peckham, medical referee to the Prudential and other assurance companies, and a Fellow of the Hunterian Society

and the Medical Society of London. He was also a member of the Greenwich Division of the British Medical Association. In Greenwich and Blackheath Mr. Davies will be much missed by his numerous friends, who esteemed him both for his work and for his personality, and undoubtedly the community has sustained a great loss. He is survived by his widow, whom he married in 1900, and by three children.

Dr. CECIL FRANCIS WATTS, who was drowned in the Channel on November 2nd while yachting, was born in 1902, and received his early education at Sherborne and Caius College, Cambridge. After gaining first-class honours in both parts of the Natural Sciences Tripos, he had an equally distinguished career as a student at St. Bartholomew's Hospital, winning the Sir George Burrows prize in pathology, the Skynner prize in regional and morbid anatomy, and the Willett medal in operative surgery, and being ranked *proxime accessit* for the Brackenbury scholarship. He graduated M.A. and B.Ch.Camb. in 1927, and obtained the diplomas M.R.C.S., L.R.C.P. in the same year. He had held at his hospital the appointments of junior demonstrator in pathology, casualty house-physician, and house-surgeon, and clinical assistant in the surgical professorial and the orthopaedic units; he had also been casualty officer at the Miller General Hospital. Before qualifying, he published a paper in the *Proceedings* of the Physiological Society on the relation between the size of the electrical response and tension developed during the contraction of striated muscle, and also another paper, on the effect of curari and denervation on the electrical excitability of striated muscle. In 1929 he contributed to *St. Bartholomew's Hospital Journal* an article on fractures of the tibia and fibula, with notes of five cases. He was a member of the British Medical Association.

Dr. WILSON BLACK, who died on October 23rd at his residence in Academy Street, Inverness, had been in ill-health since he retired from active practice about seven years ago. John Wilson Black received his medical education at Edinburgh University, where he graduated M.B., C.M. in 1885, and proceeded M.D. in 1896. After acting as house-surgeon to the Northern Infirmary, Inverness, he was appointed a member of the medical staff as ophthalmic surgeon. His skill in the treatment of eye diseases was soon recognized when he started practice in his native town, and patients came to consult him from a wide area. As a family practitioner he had a large and influential practice, being much beloved for his sympathetic and unassuming disposition. Dr. Black was a member of the Ophthalmological Society of the United Kingdom and of the Scottish Ophthalmological Society.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons this week considered the Government's Agriculture Bill and the financial side of the proposal to raise the age for compulsory school attendance.

The Parliamentary Medical Committee, at its first meeting of the session on November 11th, re-elected Dr. Salter its chairman and Mr. Somerville Hastings its honorary secretary. A selection was made of subjects on which addresses or discussions are desired at future meetings. Suggestions approved include: Dr. Addison on bovine tuberculosis; an address from a spokesman of the Eugenics Education Society; and talks on colonial medical problems, health problems in mines, the health of the mercantile marine, and maternal mortality.

A committee of the National Medical Service Association sat at the House of Commons on November 10th and approved a modified draft of a statement in criticism of the British Medical Association Scheme for a General Medical Service. This criticism will be published.

The Conservative party's Parliamentary Agricultural Committee has appointed a committee to investigate the present position of the Royal Veterinary College.

On November 7th the Architects Registration Bill was read a second time without a division. During the debate Professor Sinclair referred to the General Medical Council, and spoke of the improvement in the dental profession which had followed registration under the Dentists Act, 1921.

The Education (School Attendance) Bill was read a second time on November 6th. Speaking against the second reading, Dr. Vernon Davies said he was assured that the "little piecers" of Lancashire were not so expert as their fathers, owing to the abolition of the half-time system.

On November 11th Mr. Foot presented a bill to extend the operation of the enactments relating to the protection of animals kept in captivity or confinement and released for the purpose of being hunted or coursed.

B.C.G.

Mr. GREENWOOD, in reply to Mr. Freeman on November 6th, said that he had received a copy of a confidential report made to the Medical Research Council by the two representatives who visited Lübeck early this year in connexion with the deaths of sixty-seven children following the Calmette treatment at the Pasteur Institute. The report dealt with technical matters which were of interest only to research workers, and did not cover the ground of the official German inquiry, which was being made by the Imperial Board of Health. By courtesy of the German authorities he had received copies of two statements on the subject, in one of which mention was made of the neglect of certain precautions which should have been observed in the administration of the treatment, but the investigation into the cause of the deaths, which involved difficult problems of bacteriology, was not complete, and might not be completed for some time.

Animal Experiments.

Mr. SHORT said, in answer to Mr. Freeman on November 5th, that members of the advisory committee for the administration of the Acts relating to experiments on living animals were appointed on the ground of their general suitability to advise the Secretary of State. There was no differentiation of function between various members of the committee. The usual method of killing animals found to be suffering pain which was severe or likely to endure was to administer an overdose of chloroform, but no record was kept of such cases.

Mr. CLYNES said, on November 11th, that the evidence for scrupulous observance of the "pain" condition in experiments was that the inspectors, who saw many thousands of animals under experiment in a year, had not found any indication of an infringement of this condition. The known character of the licence holders was an additional guarantee that the conditions of their licences were observed. He would not arrange for a summary to be included in the annual official report of the nature and purpose of each experiment performed on living animals. To do so would be foreign to the purpose of the report and an unjustifiable expenditure of public money. No useful purpose would be served by keeping a record of the number and species of animals killed following vivisection experiments as a result of pain which was too severe and likely to endure, and publishing the figures in the annual report.

On November 11th Mr. SHAW told Mr. Freeman that no experiments had been carried out on horses at Cambridge, and those at Porton had been with the sole object of devising protective and curative treatment for these animals. Dogs were not used for experimental purposes at these stations.

Control of Dangerous Drugs.

Mr. CLYNES told Colonel Howard-Bury, on November 6th, that all States, whether members or non-members of the League of Nations, would be invited to send representatives to the general conference being convened next May for the conclusion of an agreement on the limitation of the manufacture of dangerous drugs. The Preliminary Opium Conference now taking place was convened to consider questions which concerned primarily the countries engaged in manufacturing dangerous drugs, in preparation for the general conference in May, 1931, to which all consuming countries were being invited.

Mr. CLYNES told Mr. Mander, on November 5th, that no fresh action was required concerning the traffic in opium and other dangerous drugs as recommended in a resolution passed by the League of Nations. The measures recommended were already in operation in this country.

Dental Benefit.

Answering Mr. Llewellyn-Jones, on November 6th, Mr. GREENWOOD said about 6,000 approved societies and branches in England and Wales, whose total membership at the date of the second valuation was approximately 12,700,000, contributed towards the cost of dental treatment for their members, and about 500 societies and branches, whose total membership at the same date was about 1,000,000, did not provide dental benefit. The third

valuation of societies had not yet been completed, but the result thus far did not show any reduction in the amount allocated for the provision of dental benefit.

In reply to Mr. Rhys Davies, on November 6th, Mr. GREENWOOD said that, under the regulations governing the provision of dental benefit, no distinction was made between employed and voluntary contributors. Before varying the regulations in this respect, he required to be satisfied that there were sufficient reasons to justify the variation, and such reasons had not yet been put before him.

Hospital Treatment of Pensioners.

Mr. F. O. ROBERTS, on November 10th, told Mr. Stephen that, after careful consideration, he had decided that Bellahouston Hospital could not justifiably be maintained beyond a date early in the New Year, so that the premises might be handed back to the Red Cross and the necessary reinstatements completed by the date of the expiry of the lease. He had arranged with the committee of Erskine House for the use of that hospital for the type of case at present treated at Bellahouston. The patients would be under the care of the same surgeon as heretofore. He had also made arrangements with the Glasgow Royal Infirmary for the immediate admission of any case requiring urgent emergency treatment. All out-patients would be treated at the Glasgow Area Clinic.

Mr. STEPHEN asked if the right hon. gentleman did not intend to have a hospital in Glasgow to serve the ex-service men in the West of Scotland. Mr. ROBERTS said he did not know much about that locality. What he had to do was to see that adequate treatment was provided for the men, and he was satisfied that the arrangements made with Erskine House as a general hospital would meet all requirements.

Mr. ROBERTS stated that the average number of disabled ex-service officers and men (apart from cases of mental disease in mental hospitals) for whom the Ministry of Pensions is providing institutional treatment, whether for wounds or diseases, is, in round figures, 4,000.

Opium.

Mr. CLYNES, on November 10th, told Mr. Mander that considerable progress had been achieved with the consideration of the proposals made at the preliminary opium conference which recently opened in London, and it was hoped to submit a report in a few days.

Mr. BENN, replying to Major Pole on November 10th, said that the Government of India had formulated a scheme for dealing with the preparation of opium in the Malwa States, and was discussing it with those States.

Medical Records of Children Leaving School.—Sir CHARLES TREVELYAN told Mr. Somerville Hastings, on November 6th, that, in view of administrative difficulties involved and the interval which was likely to elapse between the age at which a child was last medically inspected in school and the age at which the first application for medical benefit was made, he did not feel justified in advising local education authorities to transfer to local insurance committees, when so requested, copies of the medical records of children leaving school. It had been impressed upon local education authorities that school medical records should be treated as strictly confidential. He was unaware of any applications for these records. Dr. Vernon Davies asked if the records were available for certifying surgeons when they were examining the children. No answer was returned.

Tinfoil Cheese Wrappers.—Replying to Sir C. Cayzer, on November 6th, Mr. GREENWOOD said that the statement of an analyst of a local authority, quoted in a recent annual report of his department, that the practice of wrapping cheeses in tinfoil was a potential danger to the health of the consumer, was well founded. He did not propose to publish any qualification.

Poison Gas.—Mr. A. HENDERSON told Mr. Graham White, on November 10th, that twenty-seven States had both signed and ratified the Geneva Protocol of June 17th, 1925, undertaking to refrain from the use of asphyxiating or poison gases in war. Nineteen other States had signed, or otherwise acceded to, this Protocol, but had not yet ratified it.

Dublin Hospitals Sweepstake.—Questions have been asked in the House of Commons concerning the Dublin hospitals sweepstake. On November 10th Mr. PETHICK-LAWRENCE informed Sir W. Davison that his attention had not been called to the sums of money which were leaving this country for investment in the Irish Free State sweepstake.

Notes in Brief.

Mr. Greenwood told Major Pole, on November 5th, that fifty-two county councils in England and Wales had incurred expenditure on the provision of milk and meals for expectant and nursing mothers, and children under school age.

The number of certified mental defectives in England and Wales on January 1st, 1930, was 25,076. Of these, 1,591 were under guardians outside institutions. The number of beds available in institutions was approximately 24,000.

On October 1st last there were, approximately, 1,89[illegible],000 persons in Scotland insured under the National Health Insurance Act.

On November 10th Dr. Addison told Mr. Freeman that foot-and-mouth disease serum had no deleterious effect on the flesh of an inoculated animal subsequently slaughtered.

In 1929 some 140,000 children were provided with spectacles under arrangements made by education authorities in England and Wales. All local education authorities had the services of an experienced oculist, except the authority for the Isles of Scilly.

Mr. Roberts informed Major Cohen, on November 11th, that in the nine years, up to September 30th last, since the time limit was enacted, some 1,400 cases of late claim had been awarded pecuniary compensation by way of pension or otherwise, and in about 500 cases surgical treatment had been provided.

Universities and Colleges.

UNIVERSITY OF LONDON.

MR. G. E. VILVANDRÉ has been recognized as a teacher of radiology at the London Hospital Medical College, and Dr. E. W. Fish as a teacher of dental surgery at St. Mary's Hospital Medical School.

The following appointed and recognized teachers have been assigned to the Faculties indicated: *Medicine:* Dr. A. Leitch (professor of experimental pathology, Cancer Hospital), Mr. H. T. Gray (teacher of surgery, Hospital for Sick Children), and Dr. D. N. Nabarro (teacher of bacteriology, Hospital for Children). *Medicine and Science:* Dr. C. R. Harington (reader in pathological chemistry, University College Hospital Medical School).

It has been decided that recognition of the Cancer Hospital as a school of the University shall be continued until October 1st, 1931.

A course of five lectures on "Diseases of bacteria" will be given by Mr. F. W. Twort, superintendent of the Brown Animal Sanatory Institution, in the theatre of the Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., on December 1st, 3rd, 5th, 8th, and 10th, at 4 p.m. Admission is free, without ticket.

NATIONAL UNIVERSITY OF IRELAND.

UNIVERSITY COLLEGE, DUBLIN.

THE following candidates have been approved at the examination indicated:

THIRD M.B.—*Part I:* *D. K. O'Donovan, *J. K. Feeney, *E. L. O. Murphy, *R. Hayes, †Irene A. Coster, †T. P. Eustace, †J. Reidy, †M. J. Murphy, †E. Fleming, †M. P. Gorman, †J. Duffy, †J. Fahy, J. F. Dawson, D. Deasy, J. P. Deasy, D. C. McCarthy, J. P. McCormack, C. A. McDonnell, J. McSorley, J. E. O'Donnell, T. D. Phelan, J. Russell, P. G. Ryan, D. F. Savage, M. F. Sheehan, J. Walsh. *Part II:* *T. A. Brady, †J. F. Sheehan, †T. Crowley, †P. J. O'Doherty, †J. Phelan, J. Diver, J. Duddy, Joan J. Kennedy, J. McDonnell, P. W. Rattery, J. F. Sheehan.

* First-class honours. † Second-class honours.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

A QUARTERLY meeting of the Royal College of Physicians of Edinburgh was held on November 4th, when the President, Sir Norman Walker, was in the chair.

Drs. Henry Leonard Wallace (Edinburgh) and William Brown, O.B.E. (Aberdeen), were introduced and took their seats as Fellows of the College.

Drs. Earle Macbeth Watson (Ontario), Wm. Archibald Mein (Bournemouth), Agnes Rose Macgregor (Edinburgh), and James Davidson (Edinburgh) were elected Fellows of the College.

The Hill Pattison-Struthers bursary in anatomy and physiology was awarded to Maurice Goldfar, and the Hill Pattison-Struthers bursary in clinical medicine to Robert Leitch Allan.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

AT the annual meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on November 3rd, the following officers were elected: President, Dr. John F. Fergus; visitor, Mr. R. Barclay Ness; honorary treasurer, Mr. J. H. MacDonald; honorary librarian, Dr. E. H. L. Oliphant.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

AT the monthly meeting of the President and Fellows, held on November 7th, the following were duly admitted to the Fellowship of the College: John Lait, Edward Keelan, Frederick MacSorley.

The following were admitted as Members: Thomas Crawford Boyd, James Michael O'Donovan.

The Licence in Midwifery was conferred upon A. K. Shem.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—C. L. Ferguson, H. R. Fosbery, V. R. O. Lahamni, S. Lokeck, J. M. L. Love, E. H. W. Lyle, E. O. Parsons, L. C. H. Sykes, P. Wade.

MEDICINE.—R. F. T. Finn, B. C. Ghose, C. R. Graham, M. Halpérine, T. C. Keble, R. D. Newton, C. G. Nicol, G. S. Rozario, C. P. Seeley.

FORENSIC MEDICINE.—E. J. Jones, R. D. Newton.

MIDWIFERY.—H. Glynn, C. R. Graham, J. Irger, W. A. Naida, H. I. Newman.

The diploma of the Society has been granted to Messrs. M. Asaad, R. F. T. Finn, B. C. Ghose, H. Glynn, C. R. Graham, M. Halpérine, T. C. Keble, J. M. L. Love, H. I. Newman, R. D. Newton, C. G. Nicol, C. P. Seeley.

Medical News.

THE Nobel prize in medicine for 1930 has been awarded to Professor Karl Landsteiner of Vienna, who since 1922 has been engaged at the Rockefeller Institute, New York, in the study of blood groups.

THE annual dinner of the Old Epsomian Club will be held at the Hotel Great Central, Marylebone Road, on Thursday, December 11th, at 7.30 o'clock.

THE annual dinner of the Chelsea Clinical Society was held at the Rembrandt Rooms on October 28th under the chairmanship of Dr. F. J. McCann. The attendance was excellent, 96 members and guests being present, the latter including Lord Riddell, Sir Thomas Horder, and the presidents of five kindred medical societies. The first dinner meeting of the session will be held at the same place on Tuesday, November 18th, when Dr. Anthony Feiling will open a discussion on the treatment of headache. All communications should be addressed to Mr. A. Rugg-Gunn, F.R.C.S., 49, Harley Street, W.1.

A MEETING of the Medico-Legal Society will be held at 11, Chandos Street, W.1, on Thursday, November 27th, at 8.30 p.m. Dr. F. C. Martley will read a paper on the importance of blood-grouping tests in paternity cases; a discussion will follow.

AT the meeting of the Royal Microscopical Society to be held in the Hastings Hall, B.M.A. House, Tavistock Square, W.C., on Wednesday, November 19th, at 5.30 p.m., the following papers will be read and discussed: Mr. R. J. Bracey, "A universal tube length and cover-glass correcting lens system for use with microscope object-glasses"; Dr. W. E. Cooke and Mr. C. F. Hill, "Microscopical studies in pernicious anaemia—I, The haemoglobiniferous cells."

THE second meeting of the session of the British Institute of Radiology will be held at the institute on November 20th, at 8.30 p.m. Dr. G. Simon will read a statement on the use of diathermy in pneumonia, and Dr. A. Müller will describe an *x*-ray generator with a rotating water-cooled target. On the afternoon of the following day the radiological department of Charing Cross Hospital will be open to inspection by provincial medical members, and later there will be an informal discussion at the institute on the movements of the intestinal tract, which will be illustrated by a cinematograph film.

A NEW course of post-graduate lectures at the City of London Maternity Hospital, City Road, E.C., will commence on November 20th, at 5 p.m., when Dr. J. A. Willett will discuss the importance of ante-natal care. The lectures will be continued on succeeding Thursdays at the same hour till February 19th, 1931, with the exception of December 25th and January 1st.

THE Fellowship of Medicine announces that in connexion with the M.R.C.P. examination lectures will be given at the Medical Society of London, 11, Chandos Street, Cavendish Square, at 8.30 p.m. on Tuesday, November 18th, by Dr. T. Izod Bennett on the conception of nephrosis, and on Friday, November 21st, by Dr. W. J. Adie on diseases of the nervous system. Tickets are obtainable from the Fellowship or at the lecture hall. A free lecture will be given at the same place on Monday, November 17th, at 4 p.m., by Mr. L. C. Rivett, on recent advances in gynaecology and obstetrics. The following free demonstrations will be given: at the Golden Square Throat Hospital on November 17th, at 2 p.m., by Mr. F. C. Ormerod; at King's College Hospital, Denmark Hill, on November 19th, at 2 p.m., by Dr. M. Critchley (neurology); and at the Royal Northern Hospital, Holloway Road, on November 19th, at 6 p.m., on gonorrhoea in the female, by Dr. Violet Russell (for women graduates only). A special course will begin on November 17th at the City of London Hospital, Victoria Park, continuing for two weeks, and occupying the whole of each day with demonstrations and lectures on diseases of the heart and lungs. At the West End Hospital for Nervous Diseases, Welbeck Street, there will be a daily course at 5 p.m. for four weeks from November 17th. The subjects of the remaining courses in 1930 are: proctology, November 24th to 29th; dermatology, December 1st to 13th; and diseases of infants from December 1st to 13th. The 1931 list of special courses is now ready, and may be obtained on application to the secretary of the Fellowship, 1, Wimpole Street, London, W.1.

THE list of medical mayors elected on November 10th include Dr. Arthur Hawkyard as Lord Mayor of Leeds, Dr. W. S. Sobie as Mayor of Oxford, and Dr. R. F. Bury re-elected Mayor of Leamington.

THE National Homecroft Association, which has as one of its aims the carrying into practical effect of the teachings of the late Dr. George Vivian Poore, author of *Rural Hygiene*, is holding a meeting on Thursday next, November 20th, at 3 p.m., in the Church House, Dean's Yard, Westminster. Dr. F. G. Crookshank will take the chair, and Professor J. W. Scott will outline the steps taken to realize the project of a memorial to Dr. Poore. So far more than £250 has been subscribed towards the proposed memorial, and a further sum of £200 has been promised. Inquiries and subscriptions may be addressed to Professor Scott at the offices of the association, 38, Charles Street, Cardiff.

THE Woodside Nerve Hospital at Muswell Hill, of which we published some particulars in our issue of November 1st (p. 741), was opened by Princess Helena Victoria on November 8th. In declaring the hospital open the Princess expressed her opinion that such an institution would meet a real want and would amply justify the care and expenditure incurred. Lord Blanesburgh, chairman and treasurer, said that the hospital was for the benefit of cultured people of slender means. It was hoped that with the assistance of the larger fees of some patients it would be possible to treat a number of people without resources. Sir James Purves-Stewart said that the hospital would not be run as a business proposition but as a contributory benevolent institution.

AT a meeting of the National Baby Week Council, held on November 12th, a discussion on the necessity for routine medical inspection of the child from the age of 1 to 5 years was opened by Dr. Eric Pritchard, chairman of the executive committee, who was followed by the joint honorary secretaries of the council, Dr. D. H. Geffen, medical officer of health for Enfield, and Mrs. Sophia Friel, M.D. The prizes awarded in the council's essay competition for domestic science pupils were presented.

ST. BARTHOLOMEW'S HOSPITAL contributed to the Lord Mayor's Show, on November 10th, a pageant emphasizing the services rendered by the hospital throughout the world. Celebrated teachers and students of the past were also portrayed in the procession, and there were references to the part played by St. Bartholomew's in past centuries, and also to the claims of its extension fund.

THE Minister of Health has issued a circular (No. 1153) describing the form in which county borough councils and authorities of areas with a population over 20,000 may submit quinquennial statements of their proposals for dealing with the housing conditions in their areas, and for providing new housing accommodation as required by Section 25 of the Housing Act, 1930. In the preparation of their statements, which must be submitted to the Minister before the end of December next, councils are reminded that their medical officers of health have been advised (Circular 1119) to include special housing information in their annual reports for the current year. (The contents of this circular were referred to in the *British Medical Journal* of June 28th, p. 1194.) The dominant figure of the statement will be the estimated number of houses which councils are able to provide to meet the requirements of their districts, whether they are to be used as additional houses or for rehousing purposes. In considering the need for new accommodation special regard must be given to the waiting lists of applicants for houses, which will probably include persons residing in houses whose demolition is contemplated by the Act.

DR. C. P. BLACKER, *M.C.*, has been appointed general secretary of the Eugenics Society as from November 1st, 1930.

DR. EMILE F. HOLMAN, professor of surgery at Stanford University, has been awarded the Samuel D. Gross prize for his research on abnormal arterio-venous communication.

AT the recent opening of the Banting Research Institute the Doctorate of Laws of the University of Toronto was conferred on Dr. Thomas S. Cullen, professor of clinical gynaecology at Johns Hopkins, in recognition of his work on cancer.

THE issue of the *Wiener medizinische Wochenschrift* for November 1st is dedicated to the Vienna paediatrist, Professor Hochsinger, on the occasion of his seventieth birthday, and contains articles dealing exclusively with diseases of children.

ON the occasion of its tenth annual meeting the German Society for Diseases of the Digestive System and Metabolism has founded a Boas prize of the value of 1,000 marks. The subject is the bacterial and non-bacterial origin of diseases of the pancreas. Candidates should send in their essays by April 1st, 1931, to the general secretary, Professor R. von den Velden, 30, Bambuga Strasse, Berlin, from whom further information can be obtained.

A MEMORIAL tablet has been affixed to the house where Paul Ehrlich was born at Strehlen in Silesia.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

Infra-red Rays.

DR. H. E. GIBSON (South Godstone) writes: I should be glad if some expert in physics would inform me whether infra-red rays penetrate ordinary glass, or are non-penetrating, like ultra-violet rays.

*** Ordinary glass—window glass—is fairly transparent to all the infra-red rays which we receive from the sun, after these have been filtered by the gases of the atmosphere. Such glass is however opaque to the much longer waves received from low temperature sources, such as a gas burner or domestic fire. The use of a magnifying glass as a "burning glass" when held in sunlight, and the action of a common glass fire screen, exemplify both effects.

Angioneurotic Oedema.

DR. P. G. SHEPPARD (Liverpool) writes: In reply to the inquiry of "H. C. B." in the *Journal* of November 8th (p. 806), I would suggest strict attention to diet and the employment of saline laxatives and antacids, with sodium benzoate in 5 to 20 grain doses three times a day. As a purgative the ordinary antacid magnesia may be given, and a gastro-intestinal antiseptic, such as salol. If these fail I would recommend a dose of salvarsan; thyroid extract in daily half-grain doses has proved useful.

Cyanosis with Collapse.

DR. L. R. LEMPRIÈRE (medical officer to Haileybury College) writes: Can any reader throw light on the following incident?

On October 28th a boy, aged 14, came into the school hospital about 12.30 p.m. complaining of feeling very faint and ill. In spite of his faintness he was not pale, but bluish; his pulse was small and quick (100). He was given some sp. ammon. aromat. and lay down: half an hour later he was no better, and was carried up to bed. Within another half-hour I went into the ward, and found him lying on his side with his head into the pillow, the face, neck, and hands having a deep blue-black colour. He was breathing very slowly and lightly, was cold but not clammy, and his pulse was almost imperceptible, but he was not unconscious, for he answered questions. He was immediately given an injection of pituitrin, to which his pulse soon responded, and a little later camphor and ether, with some brandy. Twenty minutes later he said he felt much better, but had a bad headache. The blue colour remained almost the same, and he was given frequent inhalations of oxygen. Between 2.30 and 6 p.m. he vomited half a dozen times, but his colour steadily improved, though he remained dusky-hued until the next day, by which time he seemed perfectly well. He was discharged fit on November 2nd, having had no further symptoms. He had been perfectly well until he began to feel faint while at a drawing lesson at noon. Between 10 a.m. and noon he had been at a science class, and had got some aniline dye on his lips and a drop in his mouth, but he had immediately washed his lips and mouth thoroughly. Also he had seen the school dentist, who had put a fibre dressing containing arsenic into a lateral incisor. This I removed about 3 p.m.; the dressing was a very small one in the root, and the dentist estimates the amount of arsenic as less than 1/32 grain of arsenious oxide. Could the signs and symptoms related be due to this small amount of arsenic? The boy was seen by another doctor between 4.30 and 5 p.m., when he was much better and out of danger; he then looked like a case of patent foramen ovale. The heart was frequently examined, but was quite normal; there was no enlargement of either side, and no history of previous heart trouble or fainting.

Income Tax.

Income from Additional Appointments.

"J. M." is in general practice, and holds an appointment as sub-vaccinator. In April, 1930, he was appointed visiting medical officer to a children's home, and in October medical officer for an infant welfare centre. How should income from these sources for the year 1930–31 be assessed? Also, how are the periodical payments of vaccination bonus (1s. per case) usually dealt with for income tax purposes?

*** In strict law the income from such appointments is assessable separately under Schedule E, and on that basis the first year's earnings should be assessed on the basis of the amount for the actual financial year, and thereafter on the basis of the preceding year. Frequently, however, such income, where relatively small, is not, in fact, separately assessed, but is allowed to be included in the general receipts. Presumably that course, however, involves some small loss to the Revenue, seeing that, if the appointment be held for a number of years, one year's income therefrom would not be reflected in the practice statements. So far as the bonuses on vaccination work are concerned, the rule appears to be to regard them as receipts of the year in which the payments are made, and to bring them into the assessment figures accordingly on the previous year's basis.

Replacement of Car.

"G. O. C." bought a car in May, 1926, for £200—wear and tear allowance was never claimed on that car. In June, 1930, he sold the car for £70 and bought a new car for £410. On October 1st he left his former practice and started professional work elsewhere.

*** It is a pity that the wear and tear allowance was not claimed; as we have pointed out before it always pays to do so. As it is, "G. O. C." seems to have lost the chance of obtaining any relief for the loss on the old car, because he cannot treat that as an expense of carrying on his present practice. We can only advise him to claim depreciation on the new car for 1931–32 and future years. It would be possible for him to claim an adjustment of the tax assessed for the last period of the old practice and to charge the renewal cost to that account, but that would involve interference with the liabilities of his former partners, which "G. O. C." will presumably wish to avoid.

LETTERS, NOTES, ETC.

Congenital Absence of the Bile Duct.

DR. S. WAND (Birmingham), who contributed a note on a case of congenital absence of the bile duct, which was published in the *Journal* of July 6th, 1929 (p. 36), has now sent some further details. The patient has recently given birth to another child, a girl, who is at present alive and healthy. Dr. Wand writes:—The interesting points to me in this case are: apparently the "fault" lies with her second husband, the condition has only occurred in male children in the family, the absence of jaundice at birth, and the incidence of two cases in one family, the woman's three children by her first husband being all alive and well.

Radiologist and Radiographer.

"CAPE PROVINCE" writes: We require an accurate definition of the word "radiologist," at present used quite loosely in South Africa. For confirmation of this one has only to refer to the minutes of the recent Federal Council meeting at Durban. The first essential of a radiologist is a medical qualification. Those bodies in Great Britain which confer qualifications in radiology specify this, adding that the qualification must be an "approved" one. The term "radiographer" might properly be applied to a layman doing the work, though not expected to interpret results.

An Improvised Bed Desk.

"A. A. G. D." writes: A very handy appliance for reading in bed is an ironing board which stands on its own legs, with a board 1 yard long projecting. It only requires to have a board 15 in. by 24 in. screwed on to it, and can then be used as a tea table or writing table. A reading board can also be added to it. It stands firm, will not tip over, and can be painted any colour. The total cost is about 10s. 6d.

Vacancies.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 56, 57, 58, 59, 60, 61, 65, and 66 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 62, 63, and 64.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page [illegible].

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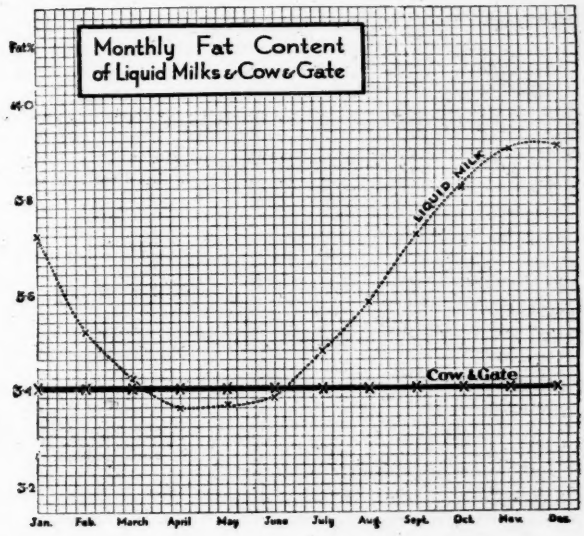

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